Master's Thesis

A Comparative Research on Air Transportation Development in the Philippines and Malaysia

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Abstract

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The aim of this thesis is to conduct a comparative analysis of the air transportation industries in the Philippines and Malaysia. Through this approach, recommendation on development strategies can be put forward to the Philippines. The research is based on the two facets of Air Transportation: (1) Infrastructure to be determined through evaluation of the core-factors of airport competitiveness, and (2) Air Service Liberalization, by application of the quantitative air services agreement review designed by the WTO. The result show that Malaysian privatization of the managing bodies of its Airports and a less bureaucratic division of air industry actors has led to more efficient and competitive airports, unlike the state owned and operated Airports of the Philippines. The study also found a positive and significant correlation between Philippines bilateral air service agreements, and contracting states openness to foreign ownership and legal origins. Malaysia on the other hand mostly focuses on partners with equally liberalized skies, particularly within its close regional proximity.

Keywords: Airport Competitiveness; Air Service Liberalization; Air Transport Industry; QUASAR; Philippines; Malaysia

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Abbreviations & Explanations

AC-ATA	ASEAN-China Air Service Agreement
AEDC	Asian Emerging Dragon Corporation
ALI	Air Liberalization Index
APEC	Asia-Pacific Economic Cooperation
ASA	Air Service Agreement
ASAP	Air Service Agreements Projector
ASEAN	Association of Southeast Asian Nations
BOT	Build-Operate-Transfer
BTAP	Business Travel Asia-Pacific
CAAP	Civil Aviation Authority of the Philippines
CAB	Civil Aeronautics Board of the Philippines
CAPA	Centre for Asia Pacific Aviation
CDC	Clark Development Council
CIA	Clark International Airport
CIAC	Clark International Airport Corporation
DCA	Department of Civil Aviation (Malaysia)
DI	Demand Competition Indicator
DMIA	Diosdado Macapagal International Airport
DOLE	Department of Labour and Employment
DOT	Department of Tourism
DOTr	Department of Transportation (Philippines)
DTI	Department of Trade and Industry
EO	Executive Order
GDP	Gross Domestic Product
HKG	Hong Kong International Airport
HS	Hub-and-Spoke Network
IATA	International Air Transport Association
ICAO	International Civil Aviation Organization
ICN	Incheon International Airport
JFC	Joint Foreign Chambers
KLIA	Kuala Lumpur International Airport
KLX	Osaka Kansai Airport
KUL	Kuala Lumpur Airport

LCC	Low Cost Carrier
LRT	Light Rail Transit
MAAS	Multilateral Agreement on Air Services
MAB	Malaysia Airports Berhad
MAFLAFS	Multilateral Agreement on the Full Liberalisation of Air Freight Services
MAFLPAS	Multilateral Agreement on the Full Liberalisation of Passenger Air Services
MAHB	Malaysia Airports Holding Berhad
MALIAT	Multilateral Agreement on the Liberalization of International Air Transportation
MCIA	Mactan-Cebu International Airport
MIAA	Manila International Airports Authority
MOT	Ministry of Transportation (Malaysia)
NAIA	Ninoy Aquino International Airport
NCR	National Capital Region
NEDA	National Economic Development Authority
NRT	Tokyo Narita Airport
OAG	Official Airports Guide
OECD	The Organisation for Economic Co-operation and Development
OLS	Ordinary Least Squares Model
PAL	Philippines Airline
PANP	Philippines Air Negotiation Panel
PATCOMC	Philippines Air Traffic Controllers Multi-Purpose Cooperative
PHP	Philippine Peso
PIATCO	Philippine International Airport Terminal Company Inc.
PPP	Public-Private Partnership Centre
PVG	Shanghai Pudong Airport
QUASAR	Quantitative Air Services Agreements Review
RIATS	Roadmap for integration of Air Travel Sector
SAH	Senai Airport Holding
SBIA	Subic Bay International Airport
SCADC	Subic-Clark Alliance for Development Council
SIN	Changi International Airport
SMPP	Samahang Manggagawa ng Paliparan sa Pilipinas

SOE	State Owned Enterprise
TFP	Total Factor Productivity
TPE	Taipei Chiang Kai Shek Airport
UAE	United Arab Emirates
USD	United States Dollar
UTC	Coordinated Universal Time
WASA	World Air Service Agreements
WEF	World Economic Forum
WLU	Work Load Unit
WTO	World Trade Organization

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1 Introduction

Air passenger growth has seen tremendous strides in the modern context. It has been estimated that the number of air passengers worldwide will double to over 7.2 billion by 2035. (IATA, 2016) With more than half of this volume being derived from the Asia-Pacific market, it is imperative for the countries within the region to develop highly competitive air transportation industries to supplement the rising demands of consumers. In addition to being traded in its own right, Air Transport is also a key intermediary service for other kinds of trade. International air transport is considered a prerequisite for the development of tourism, with over 54% of international tourists arriving by air – over 80% for developing countries. (UNESCAP, 2015) The potential growth of tourism is recognized as being increasingly important in promoting regional economic growth and social development. Furthermore, according to Grosso (2008) "a number of developing countries in the Asia Pacific region have become exporters of time sensitive products, such as textiles and clothing and electronic items and high tech instruments. Air freight often represents the only way to access distant markets in a timely fashion". (Grosso, Liberalising Air Passenger Services in APEC, 2008)

Owing to a high population density, strong economic growth, improved political stability and wide spread adoption of open skies agreements, Asia has vast potentials in air transportation demand. As a result, many of the regional countries have undertaken projects to expand their airport capacities while also opening their skies for further traffic. The combination of these two factors has allowed Asian airports to provide 9087 direct connections to airports worldwide, a rise of over 50% from half a decade earlier. (OAG, 2016) Several countries which have capitalised on this growth extensively include Hong Kong, Singapore, Japan, Malaysia, and Thailand, all of which comprise the major hubs of Asia. Despite this, there are still several countries which have not fully capitalized on this opportunity, namely, the Philippines.

The Ninoy Aquino International Airport of the Philippines is consecutively ranked as one of the worst in the world. The country's share of inter-ASEAN air passenger traffic is amongst the lowest in the region. While tourism has contributed to over 1.2 million jobs, they still lag significantly behind popular tourist destinations such as Thailand and Vietnam. In an interview, Tony Fernandes (CEO of AirAsia Berhad) claimed, "the Philippines has some of the most beautiful beaches I have ever seen, now we just have to make it possible for

people to get here". Furthermore, various independent studies have shown that the Philippines air passenger growth proportion to GDP growth is below average, both regionally and worldwide. To address this issue, we have looked at its neighbouring country, Malaysia, to determine how they achieved their aviation success and if any lessons can be learned.

This thesis will therefore attempt to answer the research question: "What are some of the current issues lagging Philippines air transportation development, and can we learn and emulate best industry practices from Malaysia's approach to Air Transportation?". The purpose of this research is to determine the key differences between Philippines and Malaysian aviation industries and provide a series of key recommendations which could potentially help the Philippines in competing within its regional aviation market.

In order to answer this question, we will conduct a cross country comparative analysis of two key factors (1) Airport Competitiveness, as a representative of air infrastructure, and (2) Air Service Liberalization, as a representative of air marketization. These factors have been chosen as best fit models due to their significance demonstrated in previous studies. Our approach is unique in that

previous literature has seldom conducted a multi-disciplinary approach to the question of air transportation development. In most cases, studies have been limited to only one of the two factors proposed here. To analyse this research question, we will draw on multiple models from related literature.

This thesis is organized as follows: the background section will provide the reader with notable information on the air transportation industry in the Philippines and Malaysia. We will discuss in depth the contribution of air transportation to their economies and draw a simple comparison. In the literature review we will introduce the models which have been used in this study to analyse the research question; namely Parks five core-factor model on airport competitiveness and WTOs Quantitative Air Service Agreement Review (QUASAR). This section will also introduce relevant findings to this study. In Part I on Infrastructure, each of the five core-factors on airport competitiveness are applied to Ninoy Aquino International Airport (NAIA), Clark International Airport, Kuala Lumpur International Airport, and Changi International Airport. Based on a standard weighing system we will present our results for both countries. In Part II, on Air Service Liberalization, we will apply the Air Liberalization Index from QUASAR to our countries of study. Using a simple

OLS model we will determine the most crucial factors affecting air service liberalization in Malaysia and the Philippines. Finally, we will conclude with a summary of our findings which as we will see are also recommendation by virtue of intuition. Each section will also briefly introduce the political economy implications surrounding our results.

2 Background

"The Asia-Pacific region is projected to have the largest fleet of passenger and freighter aircrafts among all sub-regions by 2035". (Airbus, 2016) This statement from Airbus is not surprising, given the fact that over the last five years, the number of scheduled flights operated within, to and from Asia has increased by an impressive 30 percent, with the number of scheduled flights breaking through the one million mark in 2016. A recent publication by the International Air Transport Association (IATA) shows that the Asia-Pacific region will experience an additional 1.8 billion annual passengers by 2035, summing up to an astounding 3.1 billion market size. Second only to the Middle East, this region is home to an annual growth rate of 4.7% on average. Within the Asian region particularly, there have been numerous praises of aviation development in Hong

Kong as an international hub icon, Singapore for its regional relevance, Japans Haneda as the beating heart of Japan, Kuala Lumpur as the leader of low-cost carriers, and Bangkok as the tourism hub, several neighbouring countries leave much to be desired. One such country is the Philippines.

2.1 Philippines

With its over USD 800 billion economy, Philippines ranks as having the fourth largest GDP in its region. A total of 3.2% of this is supported by air transport and foreign tourists arriving by air. In absolute terms, this sums up to over USD 9.2 billion contribution to the Philippines GDP. Furthermore, as of 2017, aviation has created over 130,000 direct jobs, 78,000 jobs from the resulting supply chain, 24,000 jobs from employee spending, and almost one million jobs from the resulting tourism. The air transportation industry also facilitates exports of USD 82.2 billion and inward Foreign direct investments of USD 56.6 billion. With its over 7000 islands, the Philippines boasts a total of 44 airports. (IATA, 2016) While these statistics prove impressive, unfortunately, the Philippines air industry ranks as one of the worst in the region, with its main gateway, Ninoy Aquino International Airport, being consecutively ranked as the worst airport in the world. And in terms of liberalization, from a pool of participating countries,

the Philippines ranked lower than 60% of nations. (WTO OMC, 2017) An independent study on air transportation development in the Philippines was conducted by Arangkada Philippines, launched by the Joint Foreign Chambers (JFC) in 2010, as a major advocacy in driving investment and employment in the Philippines. The study found numerous indices showing areas of potential development in the Philippines air transportation industry.

- Sensitivity of air passenger traffic growth to GDP growth in the Philippines was below world and regional average. Bourguignon and Darpeix (2016) determined that air transportation industry has the ability to capitalize on economy growth. Table 1 shows the average score as calculated based on ICAO data from 1994 through 2013. With a world average of 2.2, and East Asia average of 2.0, the Philippines falls in the periphery with a score of only 1.5.

Table 1:Sensitivity of Air Passenger Traffic Growth to GDP Growth *(Rodolfo, 2017)*

Region	Sensitivity of Air Passenger Traffic Growth to GDP Growth Benchmarks
World	2.2
OECD	1.8
Latin America Caribbean	1.5
Sub-Saharan Africa	1.5
Middle East North Africa	0.9
East Asia	**2.0**
South Asia	3.9

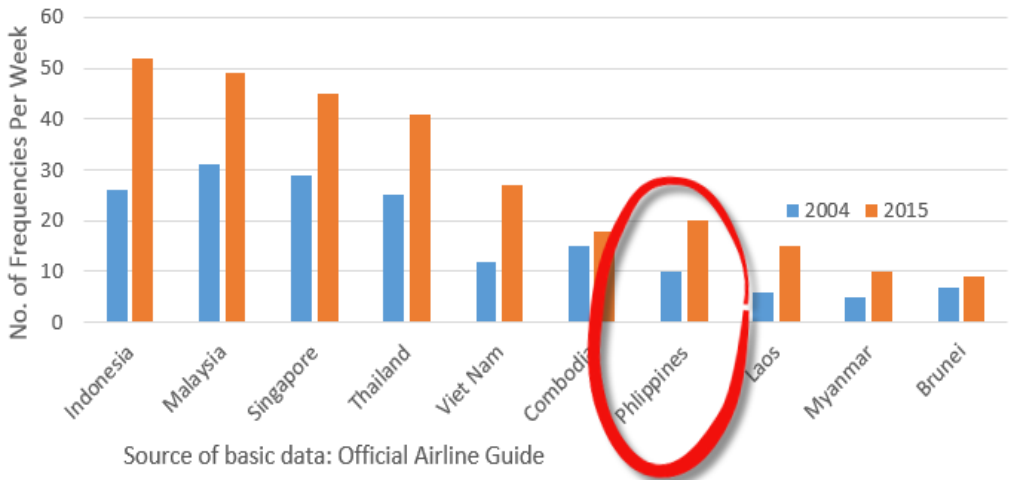
- Quality of air transport infrastructure in the Philippines also ranked as the lowest, at least in the ASEAN region. Table 2 was compiled by the authors of the study based on World Economic Forums Global Competitive Reports and scores available airline seats, quality of air transport infrastructure and quality of overall infrastructure in ASEAN countries. As can be seen, the Philippines ranks as the lowest in terms of air infrastructure quality. It ranks as 116th from a sample of 138 economies, with a score of 3.2 based on a qualitative research.

Table 2: Quality of Air Transport Infrastructure in ASEAN *(Rodolfo, 2017)*

Pillars	SIN	MAL	THAI	INDO	BRU	VIET	CAM	LAO	PH
Available airline seat km/week, millions	20 (2,480)	23 (1,922)	15 (3,141)	14 (3,228)	100 (50)	29 (1,195)	81 (107)	115 (29)	27 (1,302)
Quality of air transport infrastructure [(a)]	1 (6.9)	20 (5.7)	42 (5.0)	62 (4.5)	84 (4.1)	86 (4.1)	99 (3.9)	100 (3.8)	116 (3.2)
Quality of Overall Infrastructure	2 (6.4)	19 (5.5)	72 (4.0)	80 (3.8)	67 (4.1)	85 (3.6)	95 (3.4)	81 (3.7)	112 (3.0)

- Regional connectivity of Philippines air transportation ranks much lower in ASEAN, just slightly above Laos, Myanmar, and Brunei. Figure 1 shows us the number of flight frequencies per week between each ASEAN member and other members.

Figure 1: Inter-ASEAN flight connectivity (Rodolfo, 2017)



- Other determined deficiencies included domestic airline carriers suffering bans from international actors, highly congested major international airport (NAIA), lacking of a multi-airport policy system in the greater capital region, lack of sufficient secondary international gateways and ineffective transport institutions.

In alignment with these findings, the IATA also published a list of recommendation on immediate and long-term priorities for Manila Airports. In addition to the infrastructural issues found by the Arangkada research, IATA submits two other priorities on operational concerns and ownership and control. On privatization, the adoption of practices which are economically motivate, focused on customers, and cost efficient can only benefit an effective

administration of air transport services. In many cases, the participation of private capital and expertise can be essential for the successful development and operation of aviation infrastructure. (IATA, 2015) This study expects the question of ownership to be a recurring issue in the study of Philippines air transportation development.

Currently the Civil Aeronautics Board (CAB) under the Philippines Department of Transportation (DOTr) oversees all economic aspects of aviation, but does not oversee airport operations. This is a classic example of the separation of operations and finances at the unit and federal levels, in turn adversely affecting decision making based on economically and politically fuelled motives. (Campbell, 2002) Similarly, the Civil Aviation Authority of the Philippines (CAAP), also overseen by the DOTr, performs general aviation oversight functions, but lacks a well-established regulatory framework for airport services and economic efficiency behaviour. (IATA, 2015) This essentially shows that on one hand, Philippines aviation infrastructure is developed by a body separate from the actual actors overseeing operations, and secondly that bilateral air service agreements are also developed and implemented also separate from the actual actors overseeing operations. The CAAP and CAB are assigned annual

scorecards by the DOTr for performance appraisal. We reviewed these documents for 2012-2015 and found no reasonable factor requiring liberalization of bilateral agreements or airport facilities or management thereof. The bodies which are in fact in touch with the realities of air service demands are in two cases the Manila International Airport Authority (MIAA), in charge of NAIA, and Clark International Airport Corporation (CIAC) operating Clark International Airport. Despite also being state-owned, the division from CAAP and CAB, has limited them to simply conform to performance standards also set by functionally different units.

Having introduced the troubled air transportation industry in the Philippines, we needed to find a country which has addressed and excelled at the current issues facing Philippines aviation. The first and most obvious choice would of course have been Singapore. In terms of infrastructure, the Changi International Airport has consecutively been ranked as number one worldwide, forecasting future demand s in advance and expanding terminals to meet the same in order to produce a quality experience for passengers and airlines. (OAG, 2016) Academic researchers such as Park (1998) and Park (2003) have also found Singapore as the most competitive airport in their studies using various measures. In terms of

air service liberalization, Singapore was ranked as 6th for most liberalized agreements with partner countries, the highest in east Asia.[1] (WTO OMC, 2017) Despite this fact, we have chosen not to benchmark Singapore for the following reasons: (1) lack of multiple domestic airports and routes, (2) regional relevance places it in a focal point for access to Oceania, (3) vastly unbalanced GDP-per capita from the Philippines, and (4) significantly lower population and land area size.

2.2 Malaysia

As a result, our comparative research has decided to consider the Malaysian air industry instead as a suitable benchmark for best practices in air transportation development. The major airport **Kuala Lumpur International (KLIA)** was identified to be amongst the most competitive airports within the Asian region in independent studies by Park in 1997 and 2003 using various approaches. The five-factor model[2] which we will be using in this study was also applied to KLIA,

[1] Only Brunei was found to have a higher Air Liberalization Index, due to two completely liberalized agreements with the U.S. and New Zealand.

[2] Based on Porters forces governing competition in an industry, along with literature from Graham (1998), Assailly (1989), and Air Transport Research (2002), Park introduces a unique five-factor approach of

ranking it in close proximity to Changi Airport of Singapore, Incheon of South Korea and Hong Kong airport. In the early 1990s, KLIA was conceptualized to be a major competitive airport world-wide, with a strong footing in Asia Pacific. The development of KLIA aligns with the Malaysian national development strategy. One where the development needs of the country are addressed on time and with supple facilities, through a sustainable investment approach to infrastructure. (Tham, 2008)

The benefits of air transportation in 2014 can be found in Table 3. Where Malaysia outshines the Philippines in all economic factors, the aviation features are quite significant as well. A large portion of Malaysian traffic is derived from within Asia, at 1.9 million passengers from North America, Philippines enjoys over 600% more passengers from this region. Malaysia, however, enjoys 26% more passenger traffic in Asia which sums to a difference of over 20 million passengers per annum. We will see whether this difference is a result of air service liberalization approaches further into this study. On an economic and spatial level, the two countries share similarities such as, roughly equal GDPs

Spatial Factors, Service Factors, Demand Factors, Facility Factors, Managerial Factors to help determine airport competitiveness

albeit the large gap in GDP per capita, similar land areas of approximately 300,000 sq. km, and an urban population percentage of 23%. (The World Bank, 2017)

Table 3: Air Transportation benefits 2014 *(IATA, 2016)*

		Malaysia	Philippines
Contribution to GDP (%)		3.30%	3.20%
Gross Value added to GDP		$ 11,000.00	$ 9,200.00
Foreign Tourist Expenditure		$ 21,200.00	$ 4,700.00
FDI facilitation (000,000s)		$140,000.00	$ 56,600.00
Export Facilitation		$250,000.00	$ 82,200.00
Jobs		460,000	1,200,000
	Direct	120,000	130,000
	Supply Chain	100,000	78,000
	Employee Spending	15,000	24,000
	Tourism	220,000	970,000
Arrivals (000s)			
	North America	270	1,900
	South America	15	48
	Africa	200	120
	Europe	1,500	1,300
	Middle East	1,500	2,700
	Rest of Asia	47,800	35,100
Airports		37	44
Operating Airlines		77	44
Main Gateway Traffic (000s)		50,900	38,800

Last, but not least, we saw that ownership and control was one of the major recommendation by the IATA on air transportation development in the Philippines. As an advocate of privatization, the International Civil Aviation Organization (ICAO) released a case study on “commercialization, privatization and economic oversight of airports and air navigation services providers” highlighting the success story of Malaysia. Act 467 on Airport and Aviation Service, was devised in 1991 by the Government of Malaysia. This Act would separate the Department of Civil Aviation (DCA) in to two bodies. One the one hand, the DCA would administer a regulatory framework onto airports, however, the operations, management, and maintenance of most Malaysian airports would be reshuffled to another entity. Thus, following this act and being licensed on November 1992, the Malaysia Airports Berhad (MAB) was incorporated with a primary objective of operating airports - MAB was entitled for a concessionary period of 30 years, to oversee management and traffic of 33 airports in Malaysia. (ICAO, 2013). These are all results of a Malaysian government who has encouraged private sector-driven and people centred growth through a variety of initiatives and policies that have been very successful.

2.3 List of Aviation Actors

In the final part of the background section, we need to familiarize ourselves with the actors involved. Here we have drafted a simplified view of the levels of aviation industry bodies involved. In the Philippines, a more bureaucratic approach has created three levels beginning with the Department of Transportation (DOTr) at the highest level. Executive order 219 in 1995 saw the creation of the Civil Aeronautics Board of the Philippines (CAAP) to oversee general aviation development and operation, and the Civil Aeronautics Board of the Philippines (CAB) to handle all aviation related economic affairs at the second level. In the third level, we have various airport operators such as Manila International Airport Authority (MIAA) and Clark International Airport Corporation (CIAC). While the reporting goes according to hierarchy, the DOTr sets annual performance evaluations for all actors in the form of scorecards. All of these actors are state owned and operated – a breakdown is provided in Tables 4 and 5. From a political economy perspective the overseeing of airport operations at the state level exposes management to political forces which will be discussed further in Part I. The same could be said of CAB who is the sole overseer of ASAs with a final sign-off by the office of the President.

Table 4: Philippines Aviation Actors (Compiled by Author)

PHILIPPINES ACTORS

Level 1	Level 2		Level 3	
Actor	**Actor**	**Function**	**Actor**	**Function**
DOTr	**CAAB**	Aerodrome Development and Management Air Traffic Air Navigation Flights Standards and Inspectorate Service Civil Aviation Training Operations and Rescue Coordination Aircraft Accident Investigations and Inquiry	**MIAA CIAC etc.**	Aiport Operation and Managmenet
	CAP	ER-1- Provision of General Applicability ER-2- Charter Operations ER-3 - Purchase of Aircraft and Incurring of Indebtedness ER-4 - Airfreight Forwarders and Off-Line Carriers ER-5 - Air Taxi Operators ER-7 - Boarding Priority and Denied Boarding Compensation ER-8 - General Sales Agent and Cargo Sales Agent		

In Malaysia, there are only two levels of actors. At the highest level is the Ministry of Transportation (MOT) which oversees international conventions, several economic affairs, and supports its affiliates. At the second level are all of the agencies which include the Department of Civil Aviation (DCA), very similar in function to CAAP, but with its own in house legal and finance departments. Airport operations and management is also overseen at this level by Malaysia Airports Berhad (MAB) and Senai Airport Holding (SAH). MOT is a state body and SAH a state agency, but MAB was privatized through incorporation in 1991.

The privatization of MAB has been used as a global benchmark by the ICAO in best practices and outcomes of privatization of state owned aviation operations. In terms of ASAs, unlike the Philippines, the office of the president is separated from the office of the president, and all negotiations take place in the MOT. The organizational level for Malaysia can be seen in the following table:

Table 5: Malaysia Aviation Actors (Compiled by Author)

MALAYSIA ACTORS

Level 1		**Level 2**	
Actor	**Function**	**Actor**	**Function**
MOT	Flight Service Airport Service Safety Standards Air Accident Investigation ICAO & International Convention Human Capital Development Acts/Regulations Air Development Project	**DCA**	Airworthiness Air Traffic Management Flight Operations Airport Standards Air Traffic Inspectorate Aviation Security Civil Aviation Training Management Services Legal Advisor
		MAB **SAH**	Aiport Operation and Managmenet

3 Literature Review

International Civil Aviation Organization (ICAO) and the World Bank Air Development Transport Forum held several panels on Aviation Development focus on Asia in order to maximize civil aviation contribution to global development – held in the Kuala Lumpur convention centre on 14th and 15th of October 2008. The conclusive panels included: (1) Market access and air service liberalization, (2) safety and security, (3) Funding and resource mobilization for civil aviation, and (4) fuel challenges – which falls outside the scope of this study due to the broadness of its financial, environmental, political, and operational ramifications. (ICAO, 2008) This research will observe conclusions of these panels within the context of the Philippines Air Transport industry by observing airport competitiveness and air service liberalization. A comparison will then be drawn to aviation practices in Malaysia in order to determine areas of improvement for the Philippines. More information has been provided on the choice of Malaysia as a comparative benchmark in the background section.

The multidisciplinary approach taken in this dissertation research demanded drawing from literature from various schools of thought. This factor alone makes the nature of this study unique as most previous literature on air service

development have focused on a singular variable – predominantly on either airport competitiveness or air service liberalization. For the first time, we bring together both of these factors together to take on a holistic approach towards developing the air transportation industry in the Philippines.

3.1 On Airport Competitiveness

The interest in evaluating the performance of airports is not a new issue. Prior to the 1980's, the systematic monitoring and comparing of airport performance measure was not widely practiced in the aviation industry, most likely due to state-led protectionist measures. In most new industries, the state governments have vested interests in protecting domestic growth in the face of much more mature competitors in the global environment - the age old infant industry protection argument. The Aviation industry has not been an exception to this rule. Much like the Civil Aeronautics Board (CAB) of the Philippines government, the U.S. also created their own CAB in the early years of aviation – a unit insulating the aviation industry through protective economic measures. In 1978 however, for the first time in aviation history, they deregulated air transportation by giving airlines the freedom to enter and exit markets (domestically), and to set their own ticket and capacity rates as they saw fit. According to Mattos (2016): "it

effectively reshaped the airport infrastructure, the aircraft industry, the way airlines do business, and the world population map". This domestic affair is now part of a global chain where airline industry market penetration is crossing borders. Pursuant to this deregulation came a series of benchmarking techniques in evaluating the efficiency and productivity of airports. (Strycekova, 2011)

Strycekova (2011) takes on a methodological appraoch in evaluating 10 different variations of these airport evaluation techniques which emereged over the years. We are introduced to the application of Work Load Units (WLU)[3] in evaluating selected European Airport competitiveness by Doganis and Graham (1987) - this study utilizes the Total Factor Productivity (TFP) approach which takes into account the effect on total output 'not' caused by input.

Another relevant study was undertaken by Oum (2006) which took into acocunt different ownership structures in determining efficiency and productivity in the worlds major airports. Following The Airport Act in 1986[4], majority part of

[3] WLU is a unit of measurement representing one airport terminal passenger

[4] The British conservative government introduces the Airport Act as part of its privatization push. The act mandated all municipal airports with turnovers in excess of £1 million to become public airport companies, beginning with the British Airports Authority (BAA) and its consecutive dissolution.

airports all over the world moved from being public to the private sector. That is why the airports have taken different ownership forms. The ownership form plays an important role in performance evaluation because of different owners pursuing different goals. When a firm is operated under state ownership, bureacratic behaviour will ensure the incorporation of social welfare as well as personal agendas into the overal firms objectives. On the other hand, when an airport is under private ownership, the sole concern of management would be profit maximization in lue of shareholder values. It is generally true that publicly-owned airports are less productively efficient than airports privately owned. (Oum, Adler, & Yu, 2006) This statement is further backed by studies carried out in a different field where is was proposed by Levy (1986), De Alessi (1983) and Backx (2002): “that the objectives given to the managers of government owned firms are vaguely defined, and tend to change as the political situation and relative strengths of different interest groups change”.

There have been no studies on the state ownership of airline industry bodies in the Philippines. However, a study was undertaken by Campbell (2002) on the performance of telecommunications ownership and performance in the Philippines. It was noted that inefficiency would arise in an industry which was

plagued with rent seeking as well as corruption endorsed by the political institutions. Their natural monopoly would also ensure a lack of industry competition. Furthermore, state owned units would operate autonomously while being financially tied at the federal level. As a result, all projects and plans are intertwined with inhibitive economic and political forces. (Campbell, 2002)

The importance of all these factors combined brings us to the most essential study, as it relates to this study, by Park (2003) on an analysis of competitive strength in major Asian airports. Park combines WLU, Ownership and a series of other factors under total factor productivity umbrella to evaluate eight of the major hubs in Asia, including Kuala Lumpur Airport (KUL), Singapore Changi Airport (SIN), Seoul Incheon Airport (ICN), New Hong Kong Airport (HKG), Shanghai Pudong Airport (PVG), Osaka Kansai Airport (KLX), Tokyo Narita Airport (NRT), and Taipei Chiang Kai Shek Airport (TPE). This comprehensive study, the first of its kind, determined competitiveness not only using econometric factors, but also qualitative ones as it uses a multi-decision criteria model, where factors are weighed based on responses from industry experts on the importance of each factor. The results ranked in order from highest to lowest, HKG, SIN, ICN, KUL, KIX, NRT, TPE, and PVG. Unfortunately, this study has

several shortcomings: (1) It does not include any of the Philippines airports, (2) it is outdated, (3) spatial factors are underdeveloped. For this reason, we will benchmark where Park left off and use his approach as our point of departure.

3.2 On Air Service Liberalization

Similar to airport competitiveness, studies on air service liberalization have become more pronounced since the United States and Netherlands signed the first ever bilateral open-skies[5] agreement in 1992. This agreement removed frequency and capacity constraints on aviation services between the two nations, paving the way for more liberalized skies. The resulting success of this move led the U.S. to extend similar bilateral agreements to over 94 countries in the next two decades, effectively making it the open-skies hub nation of the world. (U.S. Department of Transportation, 2009).

Literature review of empirical papers from the early 1990s through 2014 have uniformly concluded that liberalization of air services leads to positive and

[5] ICAO (2015): "An international policy concept that calls for the liberalization of the rules and regulations of the international aviation industry—especially commercial aviation—in order to create a free-market environment for the airline industry"

significant bearings on aviation industry growth, signifying the continuous benefit of air liberalization. We reviewed several studies including Booz, Hamilton and Allen (2007) on EU and US liberalization, Grosso (2008) on APEC liberalization, Maillebiau and Hansen (1995) on North Atlantic liberalization, and Warnock-Smith and Morrell (2008) on US-Caribbean markets. The literature reveals that post-air service liberalization for the timeframe mentioned, airfares faced a reduction of 10% - 40%, followed by an increase in traffic of 18% - 75%, based on the analysed timeframe, the applied tool for analysis, and the market mix. Regardless, almost none of the peer reviewed empirical studies have found negative impacts. In 2005, InterVISTAS Consulting Inc. was commissioned by 11 industry stakeholders to conduct a study on the benefits of air service liberalization. The study examined 190 countries and 2000 bilateral air service agreements finding that the 1993 conception of the Single European Aviation Market more than doubled air traffic growth rates, and following liberalization of air services agreements, countries typically experience traffic growth rates between 12% and 35%, with some situations showing growth exceeding 50%, and some cases reaching 100% growth over pre-liberalization rates, and liberalization of 320 country pairs which are not today in an Open Skies agreement could lead to traffic growth, on average, of 63%, a significant jump

from the current global 6% per annum. (InterVISTAS-ga2, 2005) This study was updated once more in 2015 with results closely in line with the 2005 study, once again reaffirming the benefits of bilateral air transport agreements and liberalization thereof.

The growing importance of the air transport sector as an enabler of increased passenger traffic and international was unfortunately not reciprocated. The impact of international liberalization in the air transport industry has had fairly little formal research addressing it. (Grosso, Liberalising Air Passenger Services in APEC, 2008) In fact, up until 2006, there was no comprehensive analysis or database available on the degree of liberalization of bilateral service agreements – this includes the lack of statistical data on the amount of global traffic covered by open-sky, bilateral, regional, and plurilateral agreements. For this reason, the WTO Secretariat devised the Quantitative Air Services Agreements Review (QUASAR) in 2006. Combining studies on over 2000 bilateral air service agreements, they devised an Air Liberalization Index (ALI) score for each individual bilateral agreement, as well as for each country's overall aviation liberalization. This tool, for the first time, enabled the concurrent measuring of

inter-global openness and volume of air transport exchanges while considering the qualitative factors in each individual bilateral agreement.

In the case of the Philippines and Malaysia, the tool has noted much lower air service liberalization demonstrated in the Philippines than in Malaysia, a shift from recorded levels in 2005 where the Philippines was in fact leading. It is crucial to note that the study acknowledges higher ALI levels are associated with more developed aviation industries. Unfortunately, this tool has been underutilized and limited to only a few studies funded directly by the WTO. Therefore, the QUASAR tool will serve as our connecting point of departure in our cross-country comparative analysis of aviation development in Philippines and Malaysia.

4 Part I: Infrastructure - Airport Competitiveness

A poor infrastructure endowment has for long been recognized as a key bottleneck and constraint in nurturing competitiveness and growth in the Philippines. (Medalla, 2005) We cannot overemphasize the dampening effects it has on productivity of the nation as a whole. In a 2014, world economic forum, it was determined that infrastructure problems in the Philippines have surpassed corruption as the major economic deterrent. (Whaley, 2014) Therefore, any research project examining policies, or other means of enhancing productivity, have to contend with the problem of infrastructure. With the Ninoy Aquino International Airport (NAIA) consistently being voted amongst the worst airports in the world, the Air transportation industry is no exception to the rule. And hence, infrastructure, or Airport, will be our departing point of analysis in the Philippines contention with air transportation development.

In order to determine the root problem facing Philippine airports, this research presents an analysis of the competitive status of the (currently) main Philippine international Airport, NAIA along with Clark International Airport (CIA) of Philippines, Kuala Lumpur International Airport (KLIA) of Malaysia, and Changi International Airport (Changi) of Singapore. Using the five core-factors

on airport competitiveness, we will draw on the findings to make suggestions on how Philippines can improve its airport competitiveness relative to Malaysia.

4.1 Sample Airports

First let us review the choice of airports prior to introducing the method of analysis and pursuant results. **Ninoy Aquino International Airport (NAIA)** has been identified as the major International Airport of the Philippines and thus all studies of airport infrastructure reflect to a large extent, NAIA. According to the World Economic Forum (WEF) 2016-2017, the Philippines quality of air transport infrastructure ranked as 116th from 138 respondents. In addition, an executive opinion survey was launched by Arangkada Philippines[6] (conducted from January to June 2016) where respondents were asked the question: "*In your country, how is the quality (extensiveness and condition) of air transport [1 = extremely underdeveloped—among the worst in the world; 7 = extensive and efficient—among the best in the world]".* The Philippines scored 3.2 in comparison to a Malaysian 5.7 and Singaporean 6.9 amongst other ASEAN nations. (Rodolfo, 2017) With a combined design capacity of 31 million

[6] Arangkada Philippines was launched by the Joint Foreign Chambers (JFC) in 2010 as a major advocacy in driving investment and employment in the Philippines.

passengers per annum and only one runway, NAIAs facilities and terminals have reached the extremities of its capacity and security parameters. (IATA, 2015) With design and expansionary constraints, the IATA has recognized the severe limitations of NAIA and the need for a new main international airport in the Philippines.

As a local contender and potential substitute for NAIA, we have chosen **Clark International Airport (CIA)**. The recent owner of CIA, Philippines Bases Conversion and Development Authority (BCDA)[7], has launched a PHP 12.55-billion project attracting over 40 local and foreign bidders to develop CIA in multiple phases in a government attempt to replace a congested NAIA. (Mercurio, 2017) The feasibility of this project however is questionable due to 20 years of history whereby similar development plans have continuously been postponed or abandoned due to political drifts. Furthermore, its distance of over 100 Km from Manila city and military-purpose runway setup hinder its

[7] The Bases Conversion and Development Authority (BCDA) was signed into law on March 13, 1992, by President Corazon C. Aquino of the Philippines. Under Republic Act (RA) 7227 (Bases Conversion and Development Act of 1992) it is a development corporation imbued with corporate mandates. Its goal was to salvage formerly military-grade bases, and provide alternative productive civilian services. Management of CIA however is under supervision of the Clark International Authorities Corporation (CIAC), a state entity.

immediate contention with top tier regional airports. Despite these challenges, the IATA has identified CIAs capacity to meet both current and future demand for the Manila region while recapturing traffic lost from NAIA to other regional hubs.

As discussed in much detail in the background section, we have chosen Malaysia as a regional benchmark for the Philippines to emulate best practices in Air Transportation development. The major airport **Kuala Lumpur International (KLIA)** was identified amongst the most competitive airports within the Asian region in an independent study by Park [8] in 1997, using a fuzzy linguistic approach. Another study by Park[9] in 2003, this time using the five-factor model[10], also placed KLIA among the top five airports within the region. More recent studies by WEF and Arangkada reiterate similar findings. KLIA was conceptualized to be a major competitive airport world-wide, with a strong footing in Asia Pacific. The development of KLIA aligns with the Malaysian

[8] Application of a fuzzy linguistic approach to analyse Asian airports competitiveness

[9] An analysis for the competitive strength of Asian major airports

[10] Based on Porters forces governing competition in an industry, along with literature from Graham (1998), Assailly (1989), and Air Transport Research (2002), Park introduces a unique five-factor approach of Spatial Factors, Service Factors, Demand Factors, Facility Factors, Managerial Factors to help determine airport competitiveness

national development strategy. One where the development needs of the country are addressed on time and with supple facilities, through a sustainable investment approach to infrastructure. (Tham, 2008) Furthermore, KLIA is managed by MAHB, a privatized body separated from the state in 1991. This is in contrast to MIAA, a state-owned agency, managing NAIA.

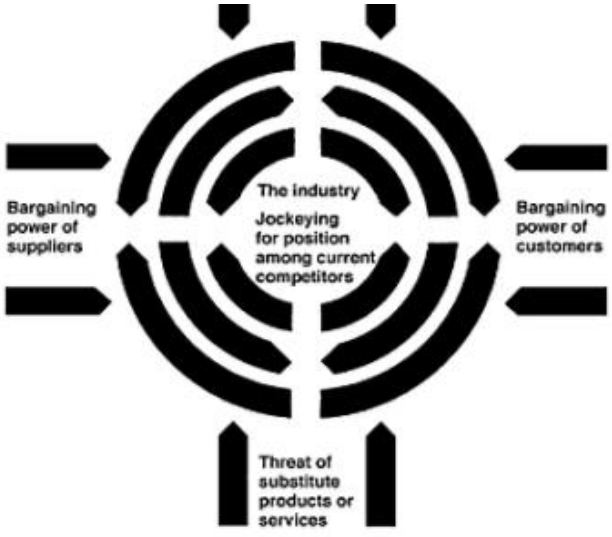
Lastly, we have chosen the **Changi International Airport** of Singapore, *simply as a control measure*, to ensure our model ranking is functioning as expected. For the purpose of this study, lessons learnt from Singapore air transportation development are seen as too distant for replicability. In a cross-national comparative research, countries which have reached a similar stage of economic, political or social development are best suited when studying the process by which underlying accomplishments have been achieved. (Hantrais, 1999) Singapore, with gaps in factors such as GDP per capita more than 1800%, population 5%, and land area 23% of the Philippines as of 2016, (The World Bank, 2017) along with a lack of domestic airlines, and possessing an ideal geographic location among other factors, is not the ideal comparative partner. Despite inherent differences, Singapore can still supplement the data analysis and interpretation method in the next section through its capacity as air transport

industry best practitioner, recognized worldwide – ranked first in 2015. (Otley, 2015)

4.2 The five Core-factors of Airport Competitiveness

Now that we are familiarised with the airports to which NAIA is to be compared, let us turn to the method used in the analysis for competitive strengths of each airport. The model we have used emulates a study published by Park (2003) to determine Airport competitiveness. It utilizes a five core-factor group multi-decision criteria model. By determining the core competencies of the researched airports, we can determine areas for improvement on the Filipino side, while studying best practices and competitive factors on the Malaysian side. As a pre-requisite, competition here is defined as introduced by Porter (1980), the long established competitive advantage to a wider audience. Porter argues that

Figure 2: Forces governing competition in an industry *(Porter, 1998)*



competition state is dependent on the five forces demonstrated in Figure 2, and that collectively, these forces determine potential industry profit.

The subsequent ‘five core factors’ affecting airport competitive advantage relating to passenger and cargo activities can be broken down into the following factors (Park, 2003) as portrayed in figure 3:

- *Spatial* - The level of regional development surrounding the airport. Entertainment centres and attractions, logistics and resorts, aviation-industry complexes, and more.
- *Facility* - The level of airport facilities. The ability for future expansion in terms of terminal and runway development.
- *Demand* - The level of origin-destination (O-D) demand. Volume of incoming, outgoing, transit, and transfer traffic. The effective application of the hub-and-spoke network.
- *Service* – The level of service to airport users including passengers and airlines.
- *Managerial* – The level of economic considerations. State versus private ownership and level of non-aeronautical revenues.

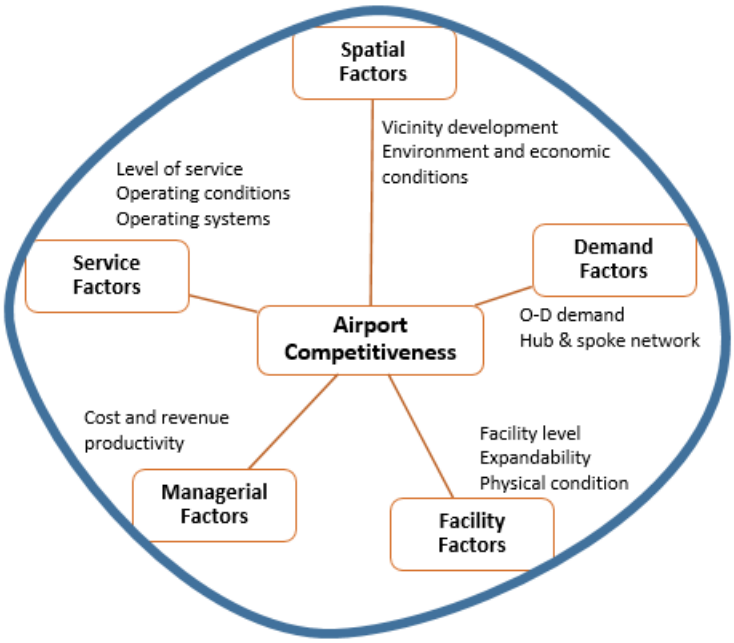


Figure 3: The structure of airport competitive advantage (Constructed by Author)

While Park has already utilized the above model in 2003 to determine airport competitiveness among select Asian airports, the results are now outdated, and do not capture any of the Filipino airports – which are the subject of this research. What remains constant however, is the mixed ownership, size, financial accounting approach, and location variations between the selected airports. For this reason, the components of the five-factor model will mostly remain the same for the purpose of this research and include the following (where $\mathbf{F_i}$ is main core-factor, and $\mathbf{F_{ij}}$ is the component for each $\mathbf{F_i}$):

- ***Service factors*** **(F_1)** where **F_{11}** = service performance measurements, **F_{12}** = terminal space (in square metres) per passenger, **F_{13}** = airport charges level, **F_{14}** = operational airport times
- ***Demand factors*** **(F_2)** where **F_{21}** = number of airlines and flight frequency, **F_{22}** = hub-and-spoke network condition, **F_{23}** = level of induced force of demand
- ***Managerial factors*** **(F_3)** where **F_{31}** = sales per unit throughput, **F_{32}** = ratio of aeronautical vs. non-aeronautical revenues, **F_{33}** = net profit per unit throughput, **F_{34}** = type of airport operation
- ***Facility factors*** **(F_4)** where **F_{41}** = availability of expansion, **F_{42}** = category of air navigation facility
- ***Spatial factors*** **(F_5)** where **F_{51}** = environmental effects on vicinity, **F_{52}** = accessibility of airport, **F_{53}** = airport regional development

The following steps will be taken in this multi-decision criteria model to analyse the relative airport competitive strengths: (1) each component factor of a core-factor group will be evaluated using the score or rank method, (2) aggregate evaluation of each independent core-factor group, (3) consider the weighted value for each core-factor group.

1. Evaluation of each component factor $C_k \equiv M_{k(l \times i)}$ where, k = one of the five-core-factor groups, l = number of airports, i = number of k core-factor group components.
2. Core factor groups aggregate ($\tilde{C}_k$); $\tilde{C}_k \equiv \tilde{M}_{l \times i}$
3. Consideration of weighted values for each core-factor group (W_k); $D = \tilde{C}_k \times W_k \equiv \tilde{M}_{l \times k}$ where, D is the airports competitive strength, W_k is the weighted value for k core-factor group.

In a survey of airport experts, Park (2003) determined the weighted value for each of the core-factor groups. In order to remain true to the methodological integrity of the five-core factor model, this research will assume respondent evaluation of degree of importance as remaining unchanged. The following Table 6 indicates recorded responses from 38 airport experts, 13 of which were airport or government authorities, 11 airline staff, 7 academicians, and 7 researchers. The study revealed demand to be the most important competitiveness factor, followed by service, spatial, facility and managerial.

Table 6: Degree of importance of each core-factor *(Park, 2003)*

Core factors for airport competitiveness	Degree of importance / weighting value	Total (38)	Respondents (38)			
			Airport operators and governors (13)	Airline employees (11)	Researchers (7)	Academicians (7)
Demand factor	1.000	85	25	21	23	16
Service factor	0.741	63	27	15	13	8
Spatial factor	0.453	144	50	41	20	28
Facility factor	0.453	139	50	42	26	26
Managerial factor	0.438	139	43	46	23	27

Note: The number of the columns of each respondent was calculated by the sum of each respondent ranking which was in the range 1-5

4.3 Research findings on the five-core factors of airport competitiveness

This next section is broken down into subcategories of core factors. Within each sub-header, the respective components comprising the core factor will be evaluated and scored. The total of all component scores will comprise the overall core component score. Finally, all core component scores will be tallied and weighed in accordance to our degree of importance model in the end of this section.

4.3.1 Service Factors

Service performance measurements: similar to the original study, a direct assessment of service performance is not possible through primary data. An

updated Business Travel Asia-Pacific[11], released results of an October 2015 passenger survey looking at the provision of services to passengers at major airports in Asia-Pacific. Similar to 2001 results, Changi Airport ranked as number one in categories such as duty free shopping, immigration services, customs, baggage, and other services. While KLIA also appeared in the issue, albeit its lower position to Changi, neither of the Filipino airports were reviewed, placing them both in the bottom of the group rankings.

Terminal space per passenger: this component is based on the physical characteristics of each airport. All data is retrieved from the respective airlines infrastructure data published online and includes airport terminal size in square metres and passenger handling capacity per annum. The competitive strength of the airport is then calculated by passenger comfort which is denoted in terms of number of passengers (pax) per terminal square metre. The following table 7 illustrates the respective passenger comfort values. At 70 pax/m^2, Changi airport came first, followed by NAIA (85 pax/m^2), KLIA (106 pax/m^2) and CIA (227 pax/m^2).

[11] BTAP is an Asia-Pacific region specific issue of the Business Traveller magazine – a consumer publication with the latest reviews of airports, airlines, and other travel related gadgets and accessories globally.

Table 7: Passenger comfort level *(MAHB, 2016) (MIAA, 2014) (CRK, 2014)*

Airport	Terminal	Passenger Capacity / year	Terminal size (sqm)	Passenger Comfort
KLIA	KLIA	25,000,000	479,404	52
	LCCT	15,000,000	64,067	234
	KLIA2	45,000,000	257,000	175
	TOTAL	85,000,000	800,471	**106**
NAIA	NAIA T1	6,000,000	67,000	90
	NAIA T2	9,000,000	75,000	120
	NAIA T3	13,000,000	189,000	69
	TOTAL	28,000,000	331,000	**85**
CIA	CIA	4,500,000	19,799	**227**
	TOTAL	4,500,000	19,799	**227**
CHANGI	Terminal 1	21,000,000	308,000	68
	Terminal 2	23,000,000	358,000	64
	Terminal 3	22,000,000	380,000	58
	Terminal 4	16,000,000	195,000	82
	Budget Terminal	7,000,000	28,200	248
	TOTAL	89,000,000	1,269,200	**70**

Level of airport charges: in line with past research from Park (2003), Graham (1998), and Assailly (1989), aircraft landing fees are normally taken as the most representative indicators of airport charges. For our sample, we have taken the B747-400, weighing at 352 tons, as a standard unit of measurement. Table 8 and Figure 4 illustrate how KLIA has the highest associated fees of USD 1,142.46, while CIA comes in at the lowest with only USD 506.95. All prices are up-to-

date as released by the relevant authorities.[12] Interestingly, following the 1998 revival of Philippines airlines by funds injected by CEO, Lucio Tan, on behest of the President, certain terminal fees are waived on all PAL flights in Terminal 2 of NAIA.

Table 8: Airport Landing Fees for Large Aircraft, B747-400 *(MAHB, 2016) (MIAA, 2014) (CRK, 2014)*

		Local Currency	in USD
NAIA	160tons @ P100.00	16000.00	
	over 160tons@ P80.00	15360.00	
Total		31360.00	**$ 606.52**
CIA	Fixed for +300 tons	26250.00	
Total		26250.00	**$ 506.95**
KLIA	RM1625 Fixed	1625.00	
	over 135tons@ RM7.40		
	per 500kg	3211.60	
Total		4836.60	**$1,142.46**
CHANGI	Fixed 101 to 360tons	1255.00	
Total		1255.00	**$ 919.34**

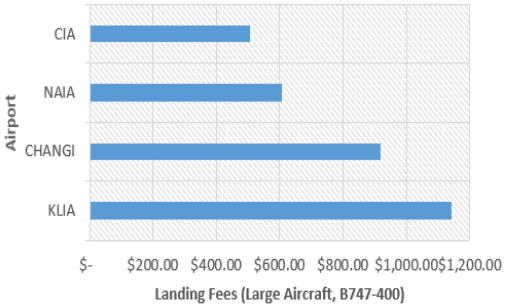


Figure 4: Airport Landing Fees for Large Aircraft, B747-400 *(MAHB, 2016) (MIAA, 2014) (CRK, 2014)*

Airport operational time: due to the nature of an Airports business and consumer demands, operation around the clock is a necessity. Most major airlines, with the exception of say Narita Airport[13], and Taiwan's Taoyuan International Airport[14]

[12] Data sourced from: NAIA (DLCA, 2016), CIA (CAAP, 2017), KLIA (MAHB, 2017), CHANGI (Changi Airport Group, 2017)

[13] No flights are currently allowed between 11 p.m. and 6 a.m. due to noise concerns

[14] Except as authorized by appropriate authority, no aircraft shall make engine tests from 16:00 to 22:00 UTC due to noise abatement.

do not have a curfew. No curfews have been noted for the airports subject to our research. Hence, all airports in our study will receive the highest allotted score for this factor.

Aggregate evaluation of service competitive strength: The results of the aggregate evaluation in terms of service factors is shown in Table 9. Factor analysis involved application of the score and rank rule where airports are ranked in descending order from 1 to 4. Despite its high level of airport charges, Changi came first due to above par service performance and terminal space per passenger. All factors inclusive, NAIA came second, followed by CIA, and surprisingly in last place, KLIA. The Malaysia airports competitiveness lagged mainly due to higher passenger congestion and overall highest airport landing fees in comparison to the group.

Table 9: Aggregate evaluation of service factor (Compiled by Author)

Competitive index	Airport	F_{11}	F_{12}	F_{13}	F_{14}	C_1
1	Changi International Airport (SIN)	1	1	3	1	6
2	Ninoy Aquino International Airport (MNL)	3	2	2	1	8
3	Clark Internaitonal Aiport (CRK)	3	4	1	1	9
4	Kuala Lumpur International Airport (KUL)	2	3	4	1	10

4.3.2 Demand Factor

Number of airlines and flight frequency: The airport grade is generally deduced by the number of airlines operating with their respective flight frequencies. Similarly, the dense networks created by these flights creates a spoke-hub distribution diagram, where all traffic moves along spokes with the hub at the centre. This model emerged as the optimal configuration for airlines as international connectivity paired with efficient passenger movement models to ensure the least amount of movement to attain maximum connectivity. (Cook, 2008) In order to study airport competitiveness based on a demand indicator, we can consider the following three factors in tandem:

$$DI = N_a + F_w + N_c$$

where DI is the Demand competitive indicator, $\mathbf{N_a}$, the number of operational airlines, $\mathbf{F_w}$, the number of flights per week, and $\mathbf{N_c}$, the number of connecting cities. In the case of Philippines, Boquet (2012) has construed that they have not fully transitioned to a hub-and-spoke system, but rather still adopt the point-to-point flight system. Despite this we have taken the number of direct flights from NAIA and CIA to cities world-wide as a benchmark. Table 10 shows the results

for demand competitiveness based on airlines and flight frequency. These values reflect both domestic and international flights for 2014. As is to be expected, if we were to consider only international flights per week in table 10, SIN would come first place. KUL would still come second with a dramatically reduced evaluation index. This is due to a 33% domestic flight share of total KUL flights. (MAHB, 2016)

Table 10: Evaluation of the number of airlines and flight frequency (Compiled by Author)

Competitive index	Airport	No. of Airlines	Frequency per week	Connecting cities	Evaluation index
1	KUL	68	6554	153	6775
2	SIN	105	6523	127	6755
3	MNL	47	5120	85	5252
4	CRK	13	246	16	275

Hub-and-spoke network condition: in the original study, this component was calculated by determining the density of feeder-routes[15] of each airport in neighbouring areas within a 3000 km range. Here however, we have devised a more elaborate approach to capture hub quality at the regional level for both regular as well as low cost carrier (LCC) flights. LCC market penetration has

[15] Park (2003): "A feeder line is a peripheral route or branch in a network, which connects smaller or more remote nodes with a route or branch carrying heavier traffic"

dramatically increased since the conception of Parks original paper in 2003. With their point-to-point approach to connectivity, they complement the existing hub-and-spoke mechanism found in traditional airport operations. The data has been extracted from an OAG [16] report based on 2016 figures and calculated independently. The study considers single to/from connections, a maximum circuit of 150, and maximum connection window of 6 hours to determine the worlds most well-connected mega-hubs – results are demonstrated in Table 11.

Table 11: Evaluation of hub connectivity *(OAG, 2016)*

Competitve Index	**Airport**	Regular Flights Hub			LCC Flights Hub			Index
		Connectivity	World Rank	Rank	Connectivity	World Rank	Rank	
1	KUL	234	36	2	16	10	1	3
2	SIN	262	27	1	N/A	N/A	3	4
3	MNL	N/A	N/A	3	8	23	2	5
4	CRK	N/A	N/A	3	N/A	N/A	3	6

17

Level of induced force of demand: analysis of induced force on demand is based on potential for development in the locality captured by the airports geographical location. This factor can be estimated through a function of GDP and population

[16] Official Airline Guide

[17] Where no value appears for the selected airport, it is assumed that its connectivity index was not among the displayed top 100 most well connected airports globally – in such an instance a ranking score was assigned with a value of the next lowest rank plus one.

distributed within the vicinities of each respective airport. Here we consider the regional population within proximity of the airport and the regional GDP calculated as of 2016 with the results shown in table 12. The largest force of demand was noted for NAIA due to the population density in NCR[18]. As CIA is to replace NAIA, it induced forced data replicated that found for NAIA.

Table 12: Evaluation of induced force of demand (2016) *(The World Bank, 2017)*

Competitive index	Aiport	Main Area	Population		GDP		Index
			Million	Rank	Billion (USD)	Rank	
1	MNL	NCR	12.88	1	111	2	3
1	CRK	NCR	12.88	1	111	2	3
2	SIN	Singapore	5.61	3	297	1	4
3	KUL	Klang Valley	7.20	2	104	3	5

Aggregate evaluation of demand competitiveness: overall results for aggregate evaluation of the demand factor group is summarized in table 13. KLIA comes in first place due to its strong connectivity in terms of both regular airlines and flights, as well as incorporation of LCC into its connectivity hub.

[18] National Capital Region

Table 13: Aggregate evaluation of demand factor (Compiled by Author)

Competitive index	Airport	F*21*	F*22*	F*23*	C*2*
1	KUL	1	1	3	5
2	SIN	2	2	2	6
3	MNL	3	3	1	7
4	CRK	4	4	1	9

4.3.3 Managerial Factor

Sales per unit throughput: Doganis and Graham (1987) introduced the utility of WLU[19] in appraising airport competitiveness, a tool which we will use herein to calculate the sales per unit throughput. WLU and sales figures have been recorded from 2014 due to availability. While Singapore ranks. Sales per unit throughput, in table 9, show Singapore's Changi Airport group[20] coming in strong with USD 38.04 (CAG, 2015) per WLU, in comparison to MIAA's[21] USD 5.96 (MIAA, 2014) and MAHBs[22] USD 5.21 (CRK, 2014).

[19] Work Load Unit (WLU) is a unit of measurement equal to either one airport terminal passenger or 100 Kg mail/freight.

[20] A Singapore based commercial company managing and operating numerous airports worldwide, including and most notably, Changi International Airport.

[21] Manila International Airport Authority, a state owned enterprise managing NAIA

[22] Malaysia Airport Holdings Berhad, a private company managing numerous Malaysian airports, including and most notably, KLIA.

Aeronautical vs. Non-aeronautical ratio of revenues: Non-aeronautical revenues continue to be an important component of an airports bottom line. Now more than ever, this source of revenue generates higher net profit margin while helping spread income streams across higher service inducing venues which are also resistant to economic shocks. (Calleja, 2017) Here we assume that a higher non-aeronautical revenue corresponds to higher managerial competitiveness. The findings are in line with this assumption as Changi rates the highest at 1.08%, followed by KLIA (MAHB) at 0.42%, and NAIA (MIAA) at only 0.17%. CIA reported a ratio of 0.54%, however in light of the sales volumes of this airport in comparison to the sample, the results can be neglected.[23] The pursuit of non-aeronautical revenue by KLIA coincides with our literature review of managerial efficiency in a post liberalized ownership scenario introduced by Oum and Adler (2006).

Net profit per unit throughput: this component is in many ways similar to sale per unit throughput. However, each organization has adopted independent

[23] Non-aeronautical profit calculated as a percentage of net profit as reported in MIAA, MAHB, Changi Airport Group, and CRK annual reports for 2014

financial accounting techniques which affect their profitability accordingly. Despite this disparity, we will assume that a higher net profit per unit throughput signifies higher competitiveness. Yet again, as can be seen in table 14, Changi comes in first place with USD 4.96 per WLU, followed closely by KLIA at USD 4.67, and at a distant NAIA at USD 2.00 and CIA at USD 0.77.

Table 14: Evaluation of net profit and sales, per WLU *(MAHB, 2016) (MIAA, 2014) (CRK, 2014)*

Competitive index	Airport	Operator	WLU	Sales			Net Profit			Index
				Total ('000,000)	Per WLU	Rank	Total ('000,000)	Per WLU	Rank	
1	SIN	CHANGI AG	41,294,485	$ 1,570.85	38.04	1	$ 205.00	4.96	1	2
2	MNL	MIAA	34,091,159	$ 203.32	5.96	3	$ 68.25	2.00	3	6
2	KUL	MAHB	48,930,409	$ 255.04	5.21	4	$ 228.75	4.67	2	6
2	CRK	CRK	1,315,757	$ 9.96	7.57	2	$ 1.02	0.77	4	6

Type of airport operation: operation is directly related to productivity and efficiency. Past studies have shown that privately owned entities generally operate more productively and efficiently than their state-owned counterparts - one exception to this rule is Changi as we will see. While all four airports in our sample are owned by their respective state governments, they are managed and operated by various entities. Changi International Airport is managed by the Changi Airport Group, which while corporatized in 2009, its immediate holding entity is the Minister of Finance arm of the Singapore government. Despite this, Changi has achieved the highest productivity and efficiency of any airport

worldwide, and for this reason is ranked as number one is our type of airport operation competitive index. The Malaysia Airports Holdings Berhad as a wholly privatized entity comes in second place. Their unique public-private ownership schemes have awarded them numerous airport management and operating venues in Malaysia, Turkey, and India. In the Philippines, both NAIA and CIA are operated by the state; Manila International Airport Authority[24] and Clark International Airport Corporation[25] respectively. While MIAA still has some form of autonomy, CIA operations are still overseen completely by the Civil Aviation Authority of the Philippines, placing it in last place for operations.

Aggregate evaluation of managerial competitiveness: in reality, to rationally measure managerial competitiveness within an industry, we require factors such as capital and labour productivity. However, due to a difficulty in obtaining basic resources this research had to explore other venues of data based on availability. Despite limitations, the presence of Changi in our sample, along with industry measures of KLIA, our results seem to be viable as can be seen in Table 15.

[24] A Government Agency

[25] A Government Owned Enterprise

Table 15: Aggregate evaluation of managerial factor (Compiled by Author)

Competitive index	Airport	F*31*	F*32*	F*33*	F*34*	C*3*
1	SIN	1	1	1	1	4
2	KUL	4	2	2	2	10
3	MNL	3	4	3	4	14
4	CRK	2	4	4	4	14

4.3.4 Facilities Factor

*Availability of expansion***:** IATA has projected an additional 1.8 billion annual passenger growth in Asia-Pacific alone in the next 20 years. (IATA, 2016) With a growth rate of 4.3% per annum, it is detrimental for airports, particularly in our sample, to have the expandable capacity to meet future demands. Normally, large-scale airport development is divided into multiple stages whereby in the first stage a critical precondition is a viable expansion plan. We have considered the availability of land and capacity for airport terminal expansion. NAIA automatically falls to the bottom of the ranks pursuant to an IATA analysis which deduced the airport has both, reached its terminal and runway expansion capacities. All other airports however are strong in this area.

Category of air navigation facility: the next facility factor is that of air navigation facilities. A modern and competent navigation service is a necessity to create a

safe and secure air transportation environment. All of the selected airports were found to equip high-level navigation systems in compliance with ICAO standard civil aviation regulations. This study however extends beyond the scope drawn on by Park (2003) by looking at the human factor as well. Regionally, Philippines offers its air traffic controllers some of the least competitive wages, leading to brain-drainage, according to PATCOMC[26]. The same issue was not noted in either Singapore or Malaysia.

Aggregate evaluation of facilities competitiveness: results once again align with our expectation as Singapore comes out first, and Philippines' NAIA comes last place primarily due to its congestion – results shown in table 16.

Table 16: Aggregate evaluation of facility factor (Compiled by Author)

Competitive index	Airport	F_{41}	F_{42}	C_4
1	SIN	1	1	2
2	KUL	1	1	2
4	CRK	1	2	3
3	MNL	4	2	6

[26] Philippines Air Traffic Controllers Multi-Purpose Cooperative

4.3.5 Spatial factors

Environmental effects on vicinity: All airports in this study are located within the suburban area of metropolis, thus reducing adverse environmental impacts. Through a combination of conforming to IATA and local authority regulations on effective reduction of engine smoke emission, pollution falls within acceptable standards. Noise pollution however seemed to have a much larger impact. KLIA and Changi are not only further away from residential areas, but also practice specific procedures on runway choice based on aircraft type, to maximize noise abatement. NAIA lacks multiple runways to allocate for high noise producing aircrafts. In addition, it is exposing a population of approximately 43,300 to noise levels ranging from 70 to 75dBA, 161,300 from 65 to 70dBA, and a further 206,400 from 55dBA and above with exposure impacts graded as severe, significant, and moderate respectively. (Abaya & Sigua, 2006) CIA was noted as not having a substantial population within a 6km radius to create Nosie pollution discomfort.

Accessibility of airport: Airport accessibility can be determined by transit fares, variety of transportation vehicles, convenience to consumers, and comfort levels, among other factors. However, the collection and standardization of comprehensive data for this is quite cumbersome and difficult. Therefore, we only considered the available modes of transportation. All airports have dedicated shuttle buses to and from corresponding capital city centres. Only Changi [27] and KLIA[28] have direct access to high speed rail transportation. NAIA is connected to the LRT[29], albeit a 2 Km taxi ride to Baclaran station for access. CIA ranks the lowest here with no immediate access to a rail system.[30]

Airport regional development: lastly, in the evaluation of this core-factor, numerous airport related regional development structures were found within proximity of all airports. A logistics centre and industry park near Changi, formula one racing facilities near KLIA, Mall of

[27] Tanah Merah station accessible by direct subway line from Terminals 2 or 3

[28] KLIA Ekspres accessible directly from KLIA and KLIA2 and connecting to KL Sentral

[29] Light Rail Transit

[30] Should the Philippines government decide to utilize Clark station as a replacement for NAIA, a Japanese funded project has been proposed to connect NAIA to CIA via by 2022. (Jimeno, 2017)

Asia and numerous resorts near NAIA, and a few golf courses near CIA.

Table 17: Aggregate evaluation of spatial factors (Compiled by Author)

Competitive index	Airport	F_{51}	F_{52}	F_{53}	C_5
1	SIN	1	1	1	3
2	KUL	1	1	2	4
3	MNL	3	2	2	7
4	CRK	2	3	4	9

Aggregate evaluation of spatial competitiveness: the competitive strength resulting from aggregate spatial factors is shown in table 17. Once again, Changi rates as number one, followed by KLIA, NAIA, and CIA in last place regarding positive bearings on their surrounding areas.

4.3.6 Overall Assessment

Now that we have determined each component factor for the five core-factor groups and assessed the aggregate evaluation of each core-factor, we can move on to the final step of the multi-decision criteria model employed in this research – consider the weighted values for each of the core-factor groups. The results for all of these steps are as follows:

Step 1 and 2: where the five core components ($\mathbf{C_i}$) consisted of:

- $\mathbf{C_1}$: Service Factors
- $\mathbf{C_2}$: Demand Factors
- $\mathbf{C_3}$: Managerial Factors
- $\mathbf{C_4}$: Facility Factors
- $\mathbf{C_5}$: Spatial Factors

$$\tilde{C}_k \equiv \tilde{M}_{I \times I} = \begin{array}{c} \\ \mathbf{CRK} \\ \mathbf{KUL} \\ \mathbf{MNL} \\ \mathbf{SIN} \end{array} \begin{pmatrix} \mathbf{C_1} & \mathbf{C_2} & \mathbf{C_3} & \mathbf{C_4} & \mathbf{C_5} \\ 9 & 9 & 14 & 3 & 9 \\ 10 & 5 & 10 & 2 & 4 \\ 8 & 7 & 14 & 6 & 7 \\ 6 & 6 & 4 & 2 & 3 \end{pmatrix}$$

Step 3 (1): where we first reconsider the weighed values for each core-component factor

$$D = \tilde{C}_k \times W_k \equiv \tilde{M}_{I \times k}$$
$$= \tilde{C}_k \times [\ 0.741 \quad 1.000 \quad 0.438 \quad 0.453 \quad 0.453\ ]$$

Step 3 (2): and finally determine the reassessed aggregate

$$\begin{array}{c} \\ \mathbf{SIN} \\ \mathbf{KUL} \\ \mathbf{MNL} \\ \mathbf{CRK} \end{array} \begin{pmatrix} \tilde{C}_1 & \tilde{C}_2 & \tilde{C}_3 & \tilde{C}_4 & \tilde{C}_5 \\ 4.45 & 6.00 & 1.75 & 0.91 & 1.36 \\ 7.41 & 5.00 & 4.38 & 0.91 & 1.81 \\ 5.93 & 7.00 & 6.13 & 2.72 & 3.17 \\ 6.67 & 9.00 & 6.13 & 1.36 & 4.08 \end{pmatrix} = \begin{pmatrix} D \\ 14.46 \\ 19.51 \\ 24.95 \\ 27.24 \end{pmatrix}$$

evaluations in $\tilde{C}_1$ through $\tilde{C}_5$, corresponding to the same core-component factor and adjusted for weight value.

The results can give us a rational insight into the core competitive strengths which the Philippines, NAIA airport lacks in comparison to its neighbouring Malaysian KLIA airport. It is also revealing of those strengths of KLIA which are emulatable. Singapore's Changi Airport was included as a control measure to ensure the model functions normally with the expectation that Changi should rank as first in overall airport competitiveness in comparison to its peers. As can be seen, with an airport competitive strength (D) of 14.46, Changi comes first, followed by KLIA, NAIA, and CIA. Changi also placed in first for all individual weighed core-component factors with the exception of demand factors. This can be explained by a stronger Malaysian hub-and-spoke network of Low Cost Carrier flights, a competitiveness on which even the Philippines was ranked higher than Singapore.

4.4 Summary of Findings on Air Infrastructure Competitiveness

A primary objective of this research is to help the Philippines in developing its Air transportation industry by learning from Malaysia and its main international airport, KLIA. In light of this, we want to bring the core-competencies evaluated for NAIA as close as possible to that of KLIA. In a 2015 paper, the IATA made three recommendations to the Philippines government regarding this topic: (1) shut down NAIA and expand CIA as the country's main international airport, (2) a dualistic approach where the state would continue to maximize NAIA operations and develop CIA until 2025. At the same time however, they would search for and consider options in developing a new airport site with accessibility of nor more than 25 kilometres or 30 minutes from the existing gateway, and (3) a twin or dual system where the state would jointly develop CIA and NAIA as in option (2) and pending development, at a future date decide whether an alternative airport is still necessary. (IATA, 2015) Corresponding to the revealed data here, how do these suggestions fare?

Firstly, our research has found that should CIA be endorsed to replace NAIA as a major gateway for Philippines, major development projects have to be

implemented across various factors of competitiveness. Our findings show that CIA is inferior to NAIA in every core-factor competency, which is to be expected. Currently there are numerous projects, proposed and underway, to build new runways, expand current terminal and instate new ones in a multi-phase project, improve accessibility though a new dedicated fast rail system, and improve demand factors through re-directing flights from NAIA to CIA. However, no matter how many of the independent core-factor components are developed, CIA will always suffer in terms of the Spatial factor. With a distance of over 100 km from metro manila, the airport cannot physically compete with top airports in the Asia-pacific region, unless a transportation method is implemented reducing commute time between CIA and metro-manila. Current Minister of Transportation, Arthur Tugade, is pushing for a Manila-Clarke line to be opened by 2020. The project will be developed conjointly with the Japan International Cooperation Agency (JICA) which has estimated a project cost of P 255 billion. (Yee, 2017)

Secondly, options 2 and 3 both involve development of NAIA and in turn initiate a search for new airport grounds within acceptable geographic proximity to metro manila. Within these confines let us see what NAIA can learn from KLIA. A

quick review of the core-component factors reveals that the largest gaps in order of highest to lowest degrees are: Demand factors (**C_2**) at 2.00 points, Facility factors (**C_4**) at 1.81 points, Managerial factors (**C_3**) at 1.75 points, and lastly Spatial factors (**C_5**) at 1.36 points. Surprisingly, NAIA scored higher in Service factors (**C_1**), but this can be explained by the nominal airport fees and lower passenger traffic to terminal size ratios. Our research findings on infrastructure development of NAIA are as follows:

- On the highest level, demand factors will be the focus of the next section of this research dealing with the Philippines **necessity for greater air service liberalization**. This is because various studies have shown that air service liberalization leads to increased operating airlines and passenger traffic, both of which are components of the demand factor. (Piermaritini, 2008)

- In the second place of priority is the facility factor. Unfortunately, due to physical restrictions this is an immutable factor for NAIA. As IATA has recognized, NAIA facilities have reached extremities of the security parameter due to land and design restrictions. (IATA, 2015) Due to physical constraints, it is unlikely for NAIA to meet and exceed top-tier airport

competitiveness regionally. Despite this, it was found that there is room for improvement in terms of **continuously improving air navigation facilities** in exploring technological advancements, and more immediately, the ability to **devise talent retaining strategies to prevent air traffic controller brain drain**. Studies have shown that the occupational group in the Philippines with the highest number of OFWs[31]include the professional, technical and related workers group. (Lu, 2014)

- The Managerial factor was found as the single most influential factor which the Philippines government can explore in expanding the Philippines air transport infrastructure competitiveness as it is not directly constrained by physical limitations. Sales and Net profit components are by-products of operational measures. KLIA, through a privatized MAHB, was found to have much higher revenues, particularly in terms on non-aeronautical revenues – which are based on the managerial approach to operations. The ICAO and Malaysian industry experts contend that the success of KLIA is a by-product of a **shift towards a public-private partnership** or privatization of the operations and management body overseeing national airports. Such a shift

[31] Overseas Filipino Workers

was not noted in the Philippines, thus explaining the much lower percentages in non-aeronautical revenues.

Worldwide, Governments have more and more succumbed to privatization initiatives. The numerous programs trend towards economic productivity, revenue maximization, state budget deficiency alleviation, and the support for thriving financial markets. (Bortolotti, 2003) As Vickers and Yarrow (1991) point out, in transition economies such as the Philippines, SOE[32]: "managers are typically responsible to political decision-makers, who determine their promotion or career advancement, often based on patronage or nepotism rather than enterprise performance. As the political fortunes of these political decision-makers or their delegates are not very sensitive to overall SOE performance, they usually lack strong incentives to monitor enterprise management". This can explain the failed "proposed" airport expansion projects by the Philippines department of trade and its SOE subsidiaries over the past two decades.

[32] State Owned Enterprise

A review of MAHB operations reveals a shift towards non-aeronautical revenues over aeronautical revenues, which was a major component of the managerial factor in our study. In 1991, though Act 467, the Government of Malaysia enacted a separation of the Department of Civil Aviation into two entities – incorporating Malaysia Airports Berhad to take over operation, management and maintenance of a majority of Malaysian Airports. (ICAO, 2013) By 2004, the company recorded a 35% non-aeronautical revenue and stated their intention to increase this figure to over 50% in the coming years. (Moodie, 2004) The same source released MAHB non-aeronautical revenues to the tune of 54% in 2009. And finally, by 2015, non-aeronautical operations recorded at 60% of total revenue. In comparison, financial statements of Manila International Airport Authority (an SOE) show non-aeronautical operations revenue of 22% in 2009, with a drop to 17% in 2014. While it may not be guaranteed that privatization of the NAIA management would increase non-aeronautical profits, similar trends have been noted in other privately operated airports around the world.[33] While the importance of a public-

[33] In the U.S., 70% of all privatized airports were noted to focus on increasing primarily non-aeronautical profit in 2013 (Schaal, 2013). Furthermore, in a 2014 report, the ICAO published percentage of private sector involvement in Airport management as well as ratios of aeronautical to non-aeronautical revenue by regions across the world. It was found that Asia-Pacific region with a relatively high, 27% airport-private sector involvement, also had one of the highest non-aeronautical revenues of approximately 47%. (ICAO, 2015)

private partnership in terms of airport management has been noted, our research also recognized that a **shift in managerial activities towards maximizing non-aeronautical revenues** also aided the competitiveness realized by airports such as KLIA and Changi.

- Lastly, with a relatively lower importance level, Spatial factors need improvement albeit in the long-run due to its interdependence on other city infrastructure initiatives. However, it is crucial for the Philippines government to **carefully consider the potential of a new airport location prior to tying resources into a dedicated CIA railway system**.

4.5 Political Economy of Airport Competitiveness

In the previous section, we deducted the various areas of improvement for the Philippines to tap in addressing airport competitiveness. At the highest degree of separation from its KLIA counterpart, demand factors, were found to have the largest impact on NAIA competitiveness. This factor, and the concept of air service liberalization, will be analysed in detail in part II of this paper. At the next level of order, it was recognized that the managerial factor, particularly pertaining

to their administration of aeronautical vs. non-aeronautical revenue streams, served as a pivotal point of departure in improving NAIA airport competitiveness. This is especially true since this factor is not limited to physical constraints which riddle growth in areas of facility and spatial factors. However, the suggestion for privatization of NAIA operations and management is no new feat and has been proposed on various occasions in the past. What factors have lagged or suspended the adoption of these recommendations? Here we will briefly look at the history of managerial factors within a political economy framework.

4.5.1 Political Economy of the Managerial Factor

In 1990, the passage of Republic Act 6957 entitled, "An Act Authorizing the Financing, Construction, Operation and Maintenance of Infrastructure Projects by the Private Sector, and for other Purposes," also known as the Build-Operate-Transfer (BOT) Law was established through the passage of Republic Act 1957 in the early 1990s. For the first time, the private sector was included at the forefront of nation development. By 2010, President Aquino reorganized BOT under the Public-Private Partnership Centre (PPP), which is the surviving institution today. (Center, n.d.) Under the directive of PPP, numerous instances

of privatization have been observed in Philippines infrastructure and development.

Privatization of ownership, operations and management of airports is not unheard of in the Philippines. A previously state-owned Mactan-Cebu International Airport (MCIA) was handed over to the private sector after the calling out for bids on the construction, development, renovation, expansion and operation of the airport. The PPP program which enabled this, aimed to develop an modernize vital infrastructure assets. On December 22nd, 2014, a joint venture between India's GMR Infrastructure Ltd. and Philippines' Megawide Construction Corporation achieved financial closure on their bid for the project. (GMR Group, 2014) The GMR group was found ideal for this role due to their competitive bid and their experience in operating international airports in Delhi and Hyderabad, India. By 2016, based on an analysis by CAPA, a global provider of independent aviation market intelligence and analysis, the airport was awarded with the Asia Pacific Regional Airport of the year – seeing over 21% growth in international passenger and 11% growth in passenger growth since privatization. Unfortunately, the same privatization provisions of post-development operations have not been extended to any other airports in the Philippines.

In the case of NAIA, an unsolicited bid by Philippine International Air Terminal Company Inc. (PIATCO), was awarded under the BOT scheme to expand NAIA with the addition of Terminal 3. The contract also included a 25-year concession period with the rights for private operation and management of NAIA 3. A proponent of this contract included co-management of the same terminal by Asian Emerging Dragon Corp., (AEDC) led by Lucio Tan, chairman and CEO of flag carrier Philippine Airlines. (Reyes, 2010) However, upon construction of NAIA 3, the contract was voided by the government of the Philippines and management of the new terminal was assumed by MIAA – leading to several court cases being raised against the government of the Philippines.

The voiding of the contract was welcomed by several parties. (1) The Board of Airline representatives[34], in a position paper to the National Economic and Development Authority (NEDA) of the Philippines, outlined that privatization of NAIA could lead to "monopolistic" practices in terms of services being rendered to airlines or passengers by the eventual PPP deal winner; especially with the inclusion of AEDC as an airport management group where Lucio Tan of

[34] Consisting of domestic carriers as well as global giants like Delta Air Lines, Etihad and Singapore Airlines

Philippine Airlines is a significant shareholder, (2) the Samahang Manggagawa ng Paliparan sa Pilipinas (SMPP), a labour union group, in conjunction with the Department of Labour and Employment (DOLE) who had expressed their concerns over the future of NAIA employees should such a privatization ensue, (Opinyon, n.d.) and (3) various institutions such as CAPA and IATA who have warned the Philippines government to exercise caution in privatization efforts due to the incapacity of CAB and CAAP in enforcing anti-corruption measures on the operations and unfair resource allotment under a privatized airport management scheme. The distrust in the ability of CAB to circumvent foul-play here is not unfounded. As we will later see in the Air Service Liberalization section, the state body has a history of siding with particular business interest groups in the matter of policy reforms. With opposition from various interest groups, a bid for the operation of NAIA by some of the country's biggest conglomerates including Ayala Corp., SMC, JG Summit Holdings, Metro Pacific, the Lucio Tan group and Megawide Construction Corp. have all been ignored pending the incumbent administrations revision of PPP Project priorities.

5 Part II: Deregulation and Liberalization

On January 1995, President Fidel V. Ramos of the Philippines signed off on Executive Order (EO) 219 in establishing the domestic and international civil aviation liberalization policy. This document addressed liberalization in terms of carrier designation, traffic rights and routes, frequency and capacity, tariffs and fares, scheduled/chartered services, while also granting the rights to expand on all these areas to the Philippines Civil Aeronautics Board body of the Department of Transportation.[35] Consecutively, the Philippine government attracted further competition into the airline industry by privatizing PAL, removing limitations on a number of domestic and international routes, and reducing fare controls where multiple airlines served one market. The impact of liberalization on the Philippines air transportation was evaluated for the first time through an empirical framework by Wilfred (2007) who drew on methodological approaches by Dresner and Tretheway (1992), Maillebiau and Hansen (1995), Marin (1995), Jorge-Calderon (1997), and Rietveld et al. (2002). The results showed that following the 1995 liberalisation, average fare per kilometre on routes served by at least two airlines fell on average by 10% with over 90% of total passengers

[35] (Republic of the Philippines, 1995)

having access to an option of at least two airlines on domestic routes. Today, the Philippines has 11 local airlines[36] competing over domestic routes with Cebu Pacific and PAL Express holding the majority shares of 51.52% and 21.69% respectively. At the international level, only two local airlines outshine the others with Philippines Airlines taking 27.72% and Cebu Pacific taking 19.55% of total international flight shares.[37]

On the Malaysian side, liberalization has been integrated into the approach taken by the department of transportation. The government has encouraged private sector-driven and people centred growth through a variety of initiatives and policies that have been very successful. This reflects their new economic model approach which emphasizes growth through productivity, focus on innovative processes and cutting-edge technology, healthy privatization and liberalization initiatives allowing for high-value added goods and services. (OECD, 2015) The results are reflected in the respective market shares of airlines servicing Malaysian civil air transportation. In 2016, the flag carrier Malaysia airlines held

[36] Air Asia, Philippines AirAsia Inc., CebGo, Cebu Pacific, PAL Express, Philippine Airlines, Air Juan Aviation Inc., AirSwift Transport Inc., Magnum Air, Island Aviation Corp., SEAIR Int'l

[37] Data based on 2015 statistics requested from and provided by the Civil Aeronautics Board of the Philippines

only 21.70% of international flights, followed by AirAsia at 27.80%, AirAsia X at 12.10%, Malindo Air at 6.60% and other foreign airlines such as Cathay Pacific Airways, Emirates, Air Indonesia as leading market share holders. Over the past decade, we noted market penetration by a number of foreign owned airlines. The list of top 20 airlines has been noted in table 18. While the airlines in the above chart hail from across the globe, the largest share of Malaysian air transport is serviced primarily by Asian airlines.

Table 18: Highest Growth International Performance at KLIA *(MAHB, 2016)*

Year	Airline	Foreign Ownership	Passengers	Market Share Change over previous year %
2010	United Airways Bangladesh	Bangladesh	27,978	19063.00%
2013	Zestair	Philippines	58,044	7408.90%
2011	Lion Air	Indonesia	78,793	3147.90%
2007	Kuwait Airways	Kuwait	44,139	1317.90%
2007	Cebu Pacific Air	Philippines	54,441	1128.40%
2012	Transaero	Russia	2,400	692.10%
2009	SilkAir	Singapore	302,160	665.80%
2006	Indonesia AirAsia	Indonesia	131,703	609.70%
2010	Air Astana	Kazakhstan	17,229	581.80%
2013	Ethiopian Airlines	Ethiopia	34,495	568.10%
2008	Air India Express	India	111,615	539.70%
2010	Air Zimbabwe	Zimbabwe	14,014	535.60%
2015	Iran Aseman Airlines	Iran	19,446	499.80%
2009	Air Niugini	Papua New Guinea	8,522	475.40%
2016	Air China	China	77,324	458.80%
2008	Hong Kong Express	Hong Kong	66,906	456.90%
2015	Shanghai Airlines	China	57,609	431.40%
2016	Indonesia AirAsia X	Indonesia	507,405	307.70%
2014	Thai Lion Air	Thailand	13,001	288.30%
2016	All Nippon Airways	Japan	170,369	258.00%

5.1 Prelude on Demand Factors

In the previous section, we evaluated airport competitiveness in the Philippines by applying Parks (2003) five-core factors of airport competitiveness to NAIA, its major local contender CIA, its regional benchmark KLIA, and to Changi as a control measure for industry best practices. Our model determined that the largest gap between NAIA in the Philippines and KLIA in Malaysia is rooted in:

- ***Demand factors*** **(F_2)** where **F_{21}** = operating airlines and their operation frequency, **F_{22}** = condition of the hub-and-spoke networks, **F_{23}** = induced force of demand

A further look into the composition of this core-factor reveals NAIA ranks worst in terms of number of airlines, flight frequency, and hub-and-spoke network conditions – all factors which previous literature review has shown to have a positive relationship with air service liberalization. Therefore, this section will analyse the impact of deregulation[38] and liberalization by studying trends in

[38] ICAO (2005): "Airline deregulation is the process of removing government-imposed entry and price restrictions on airlines affecting, in particular, the carriers permitted to serve specific routes."

airline competition in terms of flag carrier performance and Low Cost Carrier entrants, and to a more comprehensive extent, approaches taken to Air Service Liberalization. On the one hand, liberalization allows for better covering of intra and inter-continental markets through better network structuring. For deregulated markets, one of the most common developments s the emergence of the HS (hub-and-spoke) network. This is particularly true in the case of airlines with access to large single destination markets such as the U.S. and Europe's single aviation market. (Fu, Oum, & Zhang, 2010) And on the other hand, liberalization has resulted in considerable growth, both in economic and traffic terms. These positive outcomes are primarily results of increased competition throughout the aviation market – competition which led to reduced prices and stimulated traffic growth. With the ability to optimize pricing strategy and network utility, carriers experience gains in efficiency. (ICAO, 2016)

5.2 Air Service Liberalization

In this next section, we will compare trends in air service liberalization between the Philippines and Malaysia. A major breakthrough in air services was achieved when the United States and Netherlands signed the first ever bilateral open-skies agreement in 1992. This agreement removed frequency and capacity constraints

on aviation services between the two nations, paving the way for more liberalized skies. The resulting success of this move led to the U.S. extending similar bilateral agreements to over 94 countries in the next two decades, effectively making it the open-skies hub nation of the world. (U.S. Department of Transportation, 2009) Lessons learnt from the west have now been adopted world-wide. Today, there are thousands of air service agreements in existence with varying approached to the freedoms of the sky[39], all of which are recorded and overseen by the International Civil Aviation Organization (ICAO).

5.3 Multilateral Agreements

This study recognizes the adoption of multi-lateral agreements as the way forward in international air service liberalization. One of the first agreements of this kind, not tied into a single region, is the Multilateral Agreement on the Liberalization of International Air Transportation (MALIAT). New Zealand, a champion of this agreement, has voiced its concern over the limitations of bilateral agreements and the need for global community to move towards multilateral level air service agreements. According to officials, the Chicago

[39] Refer to Appendix A for a full list of Freedoms with definitions

Conference in 1944 made great progress in setting the foundation of safe and secure civil aviation, one which we benefit from even today. However, it failed in reaching an agreement on and institutionalization of widely accepted exchanges in air rights. The fifth and sixth freedom right particularly do not address the openness and accessibility of markets by third-country airline operators. As a result, what ensued was the development of thousands of individual bilateral air service agreements between countries. A system which is heavily resource intensive and with accessibility issues. Furthermore, a standardized language has yet to be established within the agreement framework, despite the relatively standard pattern which is generally followed. (ICAO, New Zealand, 2013)

5.3.1 ASEAN Open Skies Agreement

These concerns were later addressed in ASEAN were a regional approach was mandated. In 2010, ASEAN published its master plan on ASEAN connectivity. This document envisioned building an ASEAN community based on connectivity in order to realise a more competitive and robust ASEAN through bringing people, goods, services and capital closer to one another. Among the multilateral agreements facilitating transport, one in particular relates specifically

to air transportation, Roadmap for integration of Air Travel Sector (RIATS), signed in Vientiane, Lao PDR on 29 November 2004. The objective of this initiative was to advance the full liberalisation of air transport services in ASEAN. This was to be achieved through a sequence of milestones, beginning with the provision of unlimited third, fourth and fifth freedom traffic rights for air freight between all ASEAN cities, as well as unlimited third, fourth and fifth freedom of traffic rights for passenger services among all ASEAN capital cities[40]. (ASEAN, 2010) ASEAN Member States would eventually sign the ASEAN Multilateral Agreement on Air Services (MAAS), the ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services (MAFLAFS), and the ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services (MAFLPAS)[41], thereby implementing RIATS.

Despite these initiatives, the actual ratification dates by the respective states were not simultaneous and lagged significantly by some members.[42] In Table 19 we

[40] Bandar Seri Begawan, Bangkok, Hanoi, Jakarta, Kuala Lumpur, Manila, Naypyidaw, Phnom Penh, Vientiane, Singapore,

[41] ASEAN (2017): "Under the MAFLPAS, passenger air services liberalisation will be extended to all ASEAN points via Protocol 1 on Unlimited Third, Fourth Freedom Traffic Rights between any ASEAN Cities and Protocol 2 On Unlimited Fifth Freedom Traffic Rights Between any ASEAN Cities"

[42] Refer to Appendix B for ratification dates by member states on MAAS, MAFLAS, MAFLPAS

have juxtaposed the instrument ratification dates by Malaysia and Philippines based on the master list from ASEAN (2017). As can be seen, in all cases Philippines lagged behind Malaysia, and most other members nations, in ratifying the instrument. In particular, the MAAS protocols 5 and 6 which facilitate flow of national airlines between ASEAN capital cities at the third, fourth and fifth freedom levels were only ratified by the Philippines in 2016, over 6 years after Malaysia. In fact, the Philippines was the last ASEAN member state to ratify this instrument. (ASEAN, 2017) MAFLPAS however was ratified only a year after Malaysia, allowing flow of passengers between ASEAN cities. Similar to MAAS, the ASEAN-China Air Service Agreement (AC-ATA) was also ratified by the Philippines, 2 years after Malaysia in 2017.

Table 19: ASEAN Transport Instruments and Status of Ratification *(ASEAN, 2017)*

Instrument	Date of Signing	Date of Ratification		Date of Entry into force
		Malaysia	Philippines	
ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services (MAFLAFS)	2009-05-20	2009-12-15	2010-04-19	2009-11-23
Protocal 1: Unlimited Third, Fourth and Fifth Freedom Traffic Rights among Designated Points in ASEAN	2009-05-20	2010-01-23	2010-04-19	2009-11-23
Protocal 2: Unlimited Third, Fourth and Fifth Freedom Traffic Rights among All Points with International Airports in ASEAN	2009-05-20	2010-01-23	2010-04-19	2009-11-23
ASEAN Multilateral Agreement on Air Services	2009-05-20	2009-12-15	2010-04-19	2009-12-22
Protocal 1: Unlimited Third and Fourth Freedom Traffic Rights within the ASEAN Sub-Region	2009-05-20	2010-01-23	2010-04-19	2009-12-22
Protocal 2: Unlimited Fifth Freedom Traffic Rights within the ASEAN Sub-Region	2009-05-20	2010-01-23	2010-04-19	2009-12-22
Protocal 3: Unlimited Third and Fourth Freedom Traffic Rights between the ASEAN Sub-Region	2009-05-20	2010-01-23	2010-04-19	2009-12-22
Protocal 4: Unlimited Fifth Freedom Traffic Rights between the ASEAN Sub-Region	2009-05-20	2010-01-23	2010-04-19	2009-12-22
Protocal 5: Unlimited Third and Fourth Freedom Traffic Rights between ASEAN Capital Cities	2009-05-20	2010-01-23	2016-03-11	2009-12-22
Protocal 6: Unlimited Fifth Freedom Traffic Rights between ASEAN Capital Cities	2009-05-20	2010-01-23	2016-03-11	2009-12-22
ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services (MAFLPAS)	2010-11-12	2011-05-24	2012-03-28	2011-06-30
Protocol 1: Unlimited third and fourth freedom traffic rights between any ASEAN cities	2010-11-12	2011-05-24	2012-03-28	2011-07-01
Protocol 2: Unlimited fifth freedom traffic rights between any ASEAN cities	2010-11-12	2011-05-24	2012-03-28	2011-07-01
Air Transport Agreement between the Governments of the Member States of ASEAN and the Government of the Peoples Republic of China	2011-01-13	2011-06-24	2017-02-07	2011-08-09
Protocol 1: Unlimited Third and Fourth Freedom Traffic Rights Between Any Points in Contracting Parties	2011-01-13	2011-06-24	2017-02-07	2011-08-09 if among those ratified
Protocol 2: Unlimited Fifth Freedom Traffic Rights Between Any Points in Contracting Parties	2011-01-13	2015-06-23	2017-05-26	2015-09-08 if among those ratified

The significant delay in the ratification by the Philippines is a result of the close entanglement of airport bodies such as the MIAA, CAAP, CAB with state led policies and initiatives. It was noted earlier in our literature reviews that the Philippines suffers from institutional inefficiencies due to policy mandates which prioritize domestic politics and economics. Similar patterns in the telecommunication industry also led to inefficiencies in development. (Campbell, 2002) As we will see later, the Civil Aeronautics Board of the Philippines, which is in charge of overseeing air service agreements, has had a history of protectionism via influence from the private sector stakeholders.

5.3.2 Post – ASEAN Open Skies

For the years 2010 through 2016, Malaysia enjoyed a year-on-year average inter-ASEAN passenger growth of approximately 10% topping up at over 34 million passengers in 2016. While the Philippines share of Malaysian inter-ASEAN traffic grew at an average of 15% during the same years, it still only accounts for 4% of total Malaysian air passenger traffic from the ASEAN region; significantly lower than Indonesia, Singapore, Thailand and Vietnam. (MAHB, 2016) By the same token, in the two years following the Malaysian ratification of AC-ATA air

service liberalization, the Malaysian traffic from China increased by over 20%, in comparison to the 0.01% growth earlier from 2014 to 2015. The Philippines unfortunately, still faces some of the lowest Chinese arrival rates from any ASEAN nation, below even Cambodia and Lao.[43] (CAPA, 2016)

The ratification of air service, passenger, and freight liberalization in an intra-ASEAN and inter-ASEAN setting cannot be the only determinant of increasing traffic. Key actors however have recognized its crucial role as a dependent variable (one of) nonetheless. Other variables may include infrastructure and policy limitations. According to Tran Dong Phuong, Director of Sectoral Development Directorate, the Philippines delayed ratifying the instrument primarily due to its lack of a substantial infrastructure to handle the forecasted growth in traffic. (Aviation News Philippines, 2013) This statement was shown to be true in the previous section on airport competitiveness analysis, but it does not suffice as the only explanation. A closer look at the Philippines constitutional directives reveals a policy level motive which has historically plagued deregulation and liberalization initiatives in the Philippines. (Lim, 2005) Despite

[43] Reduced traffic from China due to tourism purposes or other could be affected by political tensions, such as contention over the South China (West Philippines) Sea Arbitration

EO 219 which moved the Philippines towards air transportation liberalization in 1995, fully open skies are still limited through binding acts such as the Republic Act no.2232[44] or the Constitutional Directives Act XII Sec. 10[45] amongst others. Although this research will not dive in-depth into the constitutional policies of Philippines and Malaysia, it is worth mentioning that over recent years, the initiative to develop their air transportation system, has led Malaysia to promote a progressive liberal aviation policy. In 2010, the former CEO of MAS[46], Tengku Datuk Azmil Zahruddin, and AirAsia X CEO Azran Osman Rani called for a clear aviation policy in Malaysia. Despite being shot down, the Department of Transportation has ensured existing guidelines are progressively evolving to meet the requirements of the changing face of international aviation.

Lastly – industry experts have claimed that the ASEAN open skies remain a distant dream. (Citrinot, 2016) On the one hand the agreement does not include domestic cabotage. Otherwise known as the ninth freedom of the air, or "stand

[44] "Section 1. Declaration of Policy –Because of the peculiar geographical location of the Philippines, it is vital to her security and defence and to the enhancement of her commerce that she should maintain her own international air operations. xxx"

[45] Lim (2005): "In the grant of rights, privileges and concession covering the national economy and patrimony, the State shall give preference to qualified Filipinos".

[46] Malaysia Airlines

alone" cabotage, this freedom grants a designated (or not) airline the right to transport cabotage traffic of the granting State on a service performed entirely within the territory of the granting State. Hence, Malaysia Airlines will never be able to move traffic between Cebu and Manila. The seventh freedom rights – a right to fly for an airline between points in two other countries is also not allowed. A quick review of Appendix B shows that the protocols in place only deal with the third, fourth, and fifth freedoms. On the other hand, a major hurdle to liberalisation is that each ASEAN member looks into its own interest when examining the air transport issue. Realistically, this is to be expected, with the exception of Singapore which welcomes competition as a signatory and early ratifier of MAAS as well as MALIAT. In the case of the Philippines however, the protectionist measures seen in the airline competition section serve as a detrimental factor within the ASEAN open skies framework. A cross-comparison between Philippines and Malaysia is constructed in table 20 based on the document on designated airlines provided by ASEAN. Malaysia has included its flag carrier Malaysia Airlines across all instruments while allowing Air Asia to operate across various degrees of freedom, depending on the instrument, with the exception of freight transport. In the Philippines, the flag carrier Philippines Airlines has been excluded for the AC-ATA agreement - perhaps to insulate it

from reciprocal competition from Chinese operated airlines. Air Asia in the Philippines only appears on MAFLPAS for passenger traffic, while being excluded from MAFLAFS, MAAS and AC-ATA. This exclusionary approach is what industry experts referred to as one of the primary limitations of the ASEAN open skies agreement. Potential explanations for the limitations in the Philippines carrier rights under ASEAN open-skies could be explained via the political power of local airlines such as Philippines Airlines and Cebu Pacific in correspondence with CAB.

Table 20: Designated Airlines Under ASEAN Open Skies Instruments *(ASEAN, 2017)*

Instrument	Date of Signing	Airlines Permits	
		Malaysia	Philippines
ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services (MAFLAFS)	2009-05-20	MAS	PAL
Protocal 1: Unlimited Third, Fourth and Fifth Freedom Traffic Rights among Designated Points in ASEAN	2009-05-20	RMY	GAP
Protocal 2: ... among All Points with International Airports in ASEAN	2009-05-20	-	-
ASEAN Multilateral Agreement on Air Services	2009-05-20	MAB, FFM	PAL, CEB, EZD
Protocal 1: Unlimited Third and Fourth Freedom Traffic Rights within the ASEAN Sub-Region	2009-05-20	MWG, AXM, XAX	GAP
Protocal 2: Unlimited Fifth Freedom ...	2009-05-20	BVT, MLD	
Protocal 3: Unlimited Third and Fourth Freedom Traffic Rights between the ASEAN Sub-Region	2009-05-20	-	-
Protocal 4: Unlimited Fifth Freedom ...	2009-05-20	-	-
Protocal 5: Unlimited Third and Fourth Freedom Traffic Rights between ASEAN Capital Cities	2009-05-20	-	-
Protocal 6: Unlimited Fifth Freedom ...	2009-05-20	-	-
ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services (MAFLPAS)	2010-11-12	MAB, FFM	PAL, Air Asia
Protocol 1: Unlimited third and fourth freedom traffic rights between any ASEAN cities	2010-11-12	MWG, AXM	CEB, GAP
Protocol 2: Unlimited fifth freedom ...	2010-11-12	XAX, BVT, MLD	EZD, SAA
Air Transport Agreement between the Governments of the Member States of ASEAN and the Government of the Peoples Republic of China	2011-01-13	MAB, MWG, FFM, AXM, XAX, BVT, MLD, RMY	CEB GAP
Protocol 1: Unlimited Third and Fourth Freedom Traffic Rights Between Any Points in Contracting Parties	2011-01-13	-	EZD
Protocol 2: Unlimited Fifth Freedom ...	2011-01-13	-	-

[47] MALAYSIAN AIRLINES: *Air Asia Berhad (*AXM*), Berjaya Air Sdn.Bhd (*BVT*), FlyFirefly Sdn.Bhd (*FFM*), Malaysia Airlines Cargo Sdn. Bhd (*MAS*), Malaysia Airlines Bhd (*MAB*), Malindo Air (*MLD*), MasWings Sdn.Bhd (MWG), Raya Airways Sdn. Bhd (*RMY*), Air Asia X Sdn.Bhd (*XAX*)*
PHILIPPINES AIRLINES: *Air Asia Inc. (*Air Asia*), Cebu Pacific Air (*CEB*), Air Philippines Corporation (*GAP*), Philippines Airline Inc (*PAL*), Southeast Asia Airlines (*SAA*), Philippines Air Asia (*Air Asia*), Cebu Pacific Air (*EZD*)*

5.4 Bilateral Agreements

Previously, we explored the Air Transport agreements at the multilateral level. Now we will turn our attention to its presently pre-dominant form – bilateral agreements. Since conception of the first bilateral air service agreement between the U.S. and the Netherlands in 1992, thousands of new bilateral agreements have sprouted worldwide. Literature review of empirical papers from the early 1990s through 2014 have uniformly shown that a significantly positive impact is generated in areas of airfare and air traffic through the liberalization of air services. This clearly demonstrates the continued consumer benefits owing to air liberalization. The literature reveals that for the same timeframe, airfares dropped between 10% and 40%, and consecutively traffic increased from around 18% to 75%, depending on the timeframe studied, the tools applied, and the markets reviewed. Regardless, almost none of the peer reviewed empirical studies have found negative impacts. (InterVISTAS Consulting Inc., 2015) In 2005, InterVISTAS Consulting Inc. was commissioned by 11 industry stakeholders to conduct a study on the benefits of air service liberalization. The study examined 190 countries and 2000 bilateral air service agreements. Prominent findings include: (1) creation of the Single European Aviation Market in 1993 more than doubled the traffic growth rate in comparison to the preceding years, (2)

following liberalization of air services agreements, countries typically experience traffic growth rates between 12% and 35%, with some situations showing growth exceeding 50%, and some cases reaching 100% growth over pre-liberalization rates. (3) liberalization of 320 country pairs which are not today in an Open Skies agreement could lead to traffic growth, on average, of 63%, a significant jump from the current global 6% per annum. (InterVISTAS-ga2, 2005) This study was updated once more in 2015 with results closely in line with the 2005 study, once again reaffirming the benefits of bilateral air transport agreements and liberalization thereof. Maps showing the number of bilateral service agreements have been included below in figures 5 and 6 for the Philippines and Malaysia:

Figure 5: Philippines Air Service Agreements Projector 2011 *(WTO OMC, 2017)*

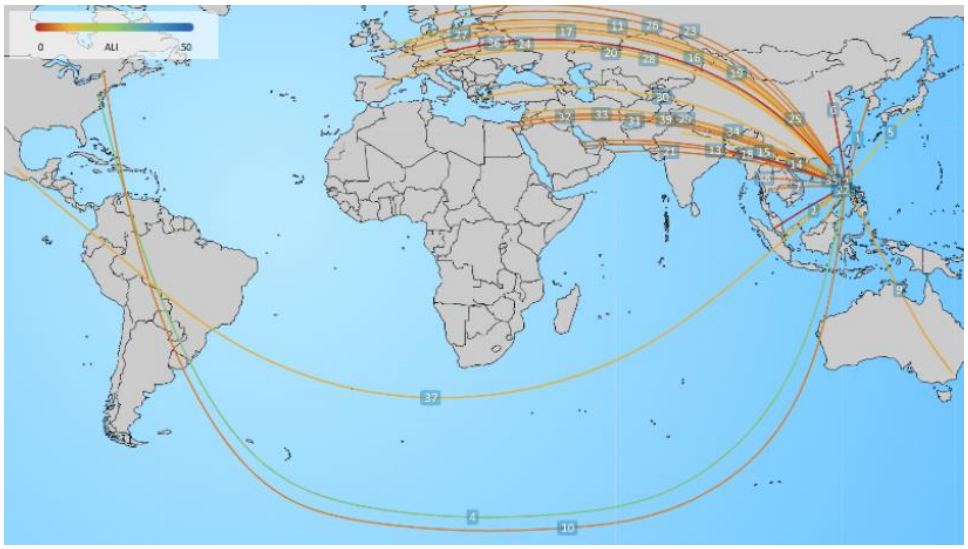
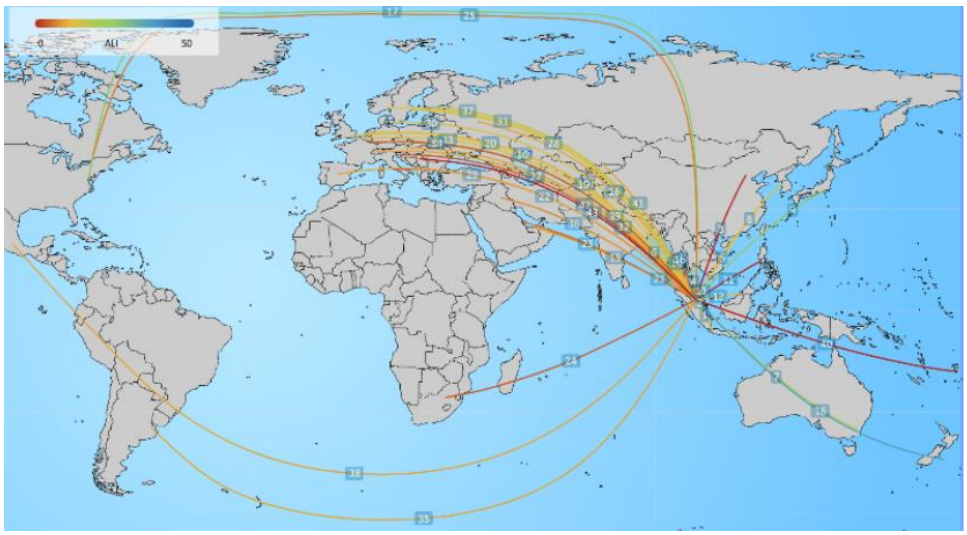


Figure 6: Malaysia Air Service Agreements Projector 2011 (WTO OMC, 2017)



5.4.1 Introduction to QUASAR

Due to the significance of bilateral air service agreements, this study will conduct a qualitative comparative analysis of the respective agreements of which Malaysia and Philippines are signatories to. The existing literature review thus far almost exclusively focuses on quantitative data using only statistical models based on passenger and flight traffic. A top contender is the gravity model which has been applied in various studies on air service liberalization by Button (2002), Piermartini of WTO (2008), Bergeijk and Brakman (2010), Grosso (2012), and

many more, including the InterVISTAS study mentioned herein. A symbiosis of quantitative and qualitative approach in this field is thus limited. However, this research believes that setting a qualitative benchmark on bilateral agreements in the industry is equally essential in formulating state approaches to liberalization and further air transportation development.

The model we have adopted here is the Quantitative Air Services Agreements Review (QUASAR) formulated by the WTO Secretariat in 2006. It places emphasis on scheduled air passenger services and in turn offers an as far as possible, detailed and comprehensive analysis of the various market access features included in bilateral ASAs. QUASAR combines information contained in ICAOs World Air Service Agreements (WASA) database[48] which has been assessed qualitatively with respect to degree of openness. A group of aviation professionals, state experts, international civil servants, and academics, were all consulted with air traffic data accessed through the IATA. For the first time, this has enabled studies to simultaneous measure the openness and volume of air transport exchanges through an international scope while considering the qualitative factors in each individual bilateral agreement.

[48] QUASAR analyses 1970 agreements from the total 2204 agreements held in the WASA database

To construct the QUASAR, the secretariat (1) assessed the main market access features of bilateral Air Services Agreements and their level of openness, (2) categorized all ASAs by type, (3) weighed the agreements by the traffic covered, and (4) validated the reality prospects of findings through a comparison with commercial data. (WTO, 2006)

QUASAR has been used extensively by Grosso (2008), Piermartini and Rousova (2008), Achard (2009) and others as a tool for conducting statistical and econometric studies on Aviation. (WTO, 2008) In one instance it was used to determine the effects of liberalizing air passenger services in APEC. Using the ALI as a variable, the study determined that doubling ALI scores in the APEC economies could lead to passenger growth rates between 5% and 7%. (Grosso, Liberalising Air Passenger Services in APEC, 2008)

5.4.2 Weighing System: Airport Liberalization Index

For the purpose of QUASAR, the WTO Secretariat devised their own weighing system - Air Liberalization Index (ALI). This was done by reviewing the main clauses of each ASA in the sample pool as deemed most indicative of openness and assessing the relative importance of each identified feature. The selected

features can be seen below, with a list of their relative weights based, as assessed by industry professional, can be found in table 21:

Table 21: Relative importance of market access features in the ALI *(WTO, 2006)*

Features	Maximum points	Relative weight
1. Grant of rights	18	36%
a. Fifth freedom	6	12%
b. Seventh freedom	6	12%
c. Cabotage	6	12%
2. Designation	4	8%
3. Withholding	8	16%
4. Capacity	8	16%
5. Tariffs	8	16%
6. Statistics	1	2%
7. Cooperative arrangements	3	6%
Total	50	100%

- **Grant of rights**: the right to provide services between the contracting states, *where these rights in order of freedom from lowest to highest include (1) Fifth freedom rights, (2) Seventh freedom rights and (3) Cabotage rights*.[49]

[49] Refer to Appendix A for a full list of Freedoms with definitions

- **Designation**: designation rights to one or multiple airlines in exercising the rights to operate agreed upon air services, *where more than one designation indicates higher freedom*

- **Withholding**: the conditions required for designated airlines of the foreign country to operate in the home country, *where regimes in order of freedom from lowest to highest include (1) substantial ownership and effective control, (2) community of interests and (3) principal place of business.*[50]

- **Capacity**: framework on determination of capacity in terms of volume of traffic, frequency, regularity of service, and aircraft types, *where regimes in order of freedom from lowest to highest include (1) predetermination, (2) Bermuda I, and (3) free determination.*[51]

[50] **Substantial ownership and effective control**: designation of airline with dominant state ownership, effectively meaning the flag carrier. **Community of interests**: designation of foreign airline with vested and substantial state ownership. **Principal place of business**: designation of foreign airline with no state ownership requirements.

[51] **Predetermination**: capacity agreed prior to service commencement. **Bermuda I**: capacity given based on state approval. **Free determination**: no regulatory control on capacity.

- **Tariff**: the framework which mandates the pricing approvals between the Contracted States, *where regimes in order of freedom from lowest to highest include (1) dual approval, (2) country of origin disapproval, (3) dual disapproval, (4) zone pricing, and (5) free pricing.*[52]

- **Statistics**: the exchange of statistical data collected by the contracting States or their operating airlines, *where a state asking for statistical data demonstrates intent to monitor and is thus a restrictive feature.*

- **Cooperation**: the right for the designated airlines to enter into cooperative marketing agreements, *where the right to enter cooperative marketing agreements such as code sharing*[53] *and alliances is more liberal.*

[52] **Dual Approval**: both party approval required. **Country of Origin disapproval**: only country of origin and disapprove tariff. **Dual disapproval**: both countries have to disapprove tariff to make it effective. **Zone Pricing**: parties agree on prices falling within a range. **Free Pricing**: prices not subject to approval by any party.

[53] IATA (2005): "Codeshare is a co-operative arrangement whereby airlines carry passengers whose tickets have been issued by another airline. The intent is to provide passengers with a wider choice of destinations than any individual airline might offer on its own."

The weighed factor matrix was applied to all agreements on file returning a standardized ALI for each independent agreement. Cumulatively, the traffic weighed average for the Philippines across 38 bilateral agreements was 13.1. Surprisingly, Malaysia with a sample of 39 bilateral agreements, scored a lower traffic weighed average of 10.7. (WTO, 2006) As the data set used is deemed as outdated, this study also drew on results from the Air Service Agreements Projector (ASAP) analytical tool launched by WTO in 2011. Using the same metrics as the QUASAR, ASAP updated the ALI projection based on 2011 records of Air Service Agreements and published the results. The ALI performance measures can be understood better by viewing them within the regional context. A complete list of ASEAN members was extracted independently, from the study, and shown in table 22 below.[54] More visibly, figure 7 shows us two important changes. Firstly, Malaysian ALI surpassed that of the Philippines by 2011. And secondly, the Philippines is the only nation in ASEAN whose ALI notably dropped during the time of study. In the next section, we will see what factors contributed to this drop and how the Philippines can improve bilateral ASAs in developing its air transportation.

[54] Brunei ALI is substantially higher than neighbouring nations primarily due to its bilateral air service agreements with New Zealand and the U.S., which scored a perfect 50 and above average 34 respectively. Taking this into account, Singapore has the most liberalized skies in ASEAN as expected.

Table 22: ASEAN Air Liberalization Index Comparison 2005, 2011 *(WTO OMC, 2017)*

	Recorded ASA	2005	2011
Brunei	34	16.70	17.60
Cambodia	14	8.10	8.50
Indonesia	25	12.90	14.30
Laos	6	0.20	0.60
Malaysia	39	10.70	12.20
Myanmar	37	7.10	7.50
Philippines	38	13.10	11.20
Singapore	68	13.00	16.10
Thailand	50	9.90	9.80
Vietnam	20	8.00	13.10

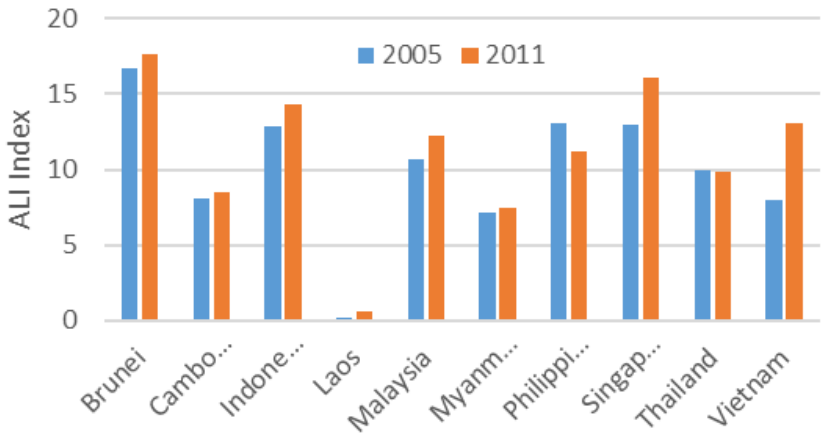


Figure 7: ASEAN Air Liberalization Index Comparison 2005, 2011 *(WTO OMC, 2017)*

5.4.3 QUASAR Application: Philippines and Malaysia

Having applied the QUASAR weighed market access features to the Philippines and Malaysia total bilateral air service agreement environment, we will now consider a more in depth view of the quality of the individual agreements. As a first step, we have considered the percentage of total national traffic for each of the seven mentioned ALI features for both Philippines and Malaysia. Unfortunately, this data was only available for 2006. However, it can give us a clear benchmark of where both nations stood in terms of ASAs prior to the massive gap which appeared between them in the oncoming years. In table 23 we have concluded the following observations: (1) Malaysia already owed a larger share of traffic to open skies policies. Both countries exceeded the average for 5th Freedom in Asia and Oceania, with Malaysia ranking closer to the global average at 77.85%. (2) Malaysian air traffic at the 7th Freedom level was 1.60%, higher than the regional level and the 0.01% of the Philippines. (3) In line with the Chicago convention of 1944[55], neither nation has allowed cabotage to date. (4)

[55] ICAO (1944): "States shall have the right to refuse permission to the aircraft of other contracting States to take on in its territory passengers … destined for another point within its territory. Each contracting State undertakes not to enter into any arrangements which specifically grant any such privilege on an exclusive basis to any other State or an airline of any other State, and not to obtain any such exclusive privilege from any other State".

Philippines was more liberal in terms of withholding, allowing for principal place of business ownership at 16.35%. Despite this early advantage, we recorded the state-owned Philippines Airlines share of almost 30% of all international flights in the Philippines for 2016. Over in Malaysia, the rise of Air Asia has changed ownership rights in the aviation industry and as of 2016, Air Asia and Air Asia X (non-state actors) cumulatively account for nearly 40% of international flights, and 50% of domestic flights. (MAHB, 2016) (5) In terms of capacity, Philippines had a higher share of free determination. Despite this, the majority of other flights took place under a very restrictive pre-determination regime in contrasts to Malaysian semi-liberal Bermuda I regime. (6) Lastly, Tariff and Cooperation both scored higher for the Philippines. While we will not deal with Tariff in this research, we can intuitively deduct that Malaysia has overtaken Philippines in terms of cooperation. As an example, Malaysia Airlines joined the one world[56] alliance in June 2011, gaining access to 860 airports in almost 160 countries. Its counterpart, Philippines Airlines, has not yet joined any airline alliances to date.

[56] An airline alliance founded on 1 February 1999 enabling code sharing among its 13 full member airlines and 30 affiliates.

Table 23: Share of traffic by feature of bilateral Air Service Agreement *(WTO, 2006)*

Feature	Property	Philippines ('%)	Malaysia ('%)	Asia and Oceania ('%)	All Regions ('%)
5th Freedom	With	75.71%	77.85%	72.30%	78.20%
7th Freedom	With	0.00%	1.60%	1.00%	5.70%
Cabotage	With	0.00%	0.00%	0.00%	0.00%
Withholding	Principal Place of Business	16.35%	8.10%	14.50%	7.60%
	Community of Interest	0.00%	0.00%	0.01%	0.10%
	Substantial Ownership and Effective Control	79.60%	91.90%	85.10%	90.00%
	Undetermined	4.04%	0.00%	0.40%	2.30%
Capacity	Free Determination	18.42%	1.60%	3.60%	18.00%
	Bermuda I	20.58%	50.08%	33.20%	26.50%
	Pre-Determination	60.87%	48.31%	59.20%	43.60%
	Undetermined	0.14%	0.00%	3.90%	11.90%
Tariff	Free Pricing	0.00%	0.00%	0.30%	0.10%
	Zone Pricing	18.42%	0.00%	2.10%	2.20%
	Double Disapproval	0.00%	2.00%	6.90%	20.30%
	Country of Origin	0.00%	0.00%	0.10%	1.00%
	Double Approval	81.52%	98.00%	90.20%	72.90%
	Undetermined	0.06%	0.00%	0.40%	3.60%
Cooperation	With	18.42%	2.00%	8.30%	25.70%

5.4.4 QUASAR Application: including Partners

In the previous section, we looked at a general distribution of traffic owing to each ALI factor in the QUASAR model of Philippines and Malaysia. Here we will go more in depth by looking at individual bilateral agreement quality between Malaysia and Philippines. We extracted independent ASA analyses for Philippines and Malaysia with partners from the QUASAR database from 2005

as well as ASAP database from 2011 – a full list can be found in Appendix C. Using a standard pivot table model, we placed the ALI scores side by side for both countries across both years. This helped us view a snapshot of developing patterns in ASA liberalizations.

Here in table 24 we took 49 bilateral agreement partner countries with which Philippines or Malaysia have had agreements with since 2005 through 2011. The cumulative score for Malaysia of all ASAs in 2005 was 382 in comparison to Philippines 323. This gap more than doubled by 2011, where the total ALI score for Malaysia grew by 26.3% grossly overshadowing a growth of only 4.3% in the Philippines.

At a partner level, the following notable changes were observed. (1) Malaysia signs a bilateral agreement with Argentina, giving access to the south American market. (2) Malaysia liberalizes its ASA with Australia with a new ALI of 21, leading to a state-Australia traffic growth of approximately four times that of the Philippines. (3) Malaysia further liberalizes its ASA with Japan with a new ALI of 26.5, strengthening traffic between the nations by over 100%. (4) Malaysia further

Table 24: ALI Standard Scores with Partner Countries *(WTO, 2006) (WTO OMC, 2017)*

Partner	Malaysia		Philippines	
	2005	2011	2005	2011
Argentina		10		
Australia	6	21	6	10
Austria	10	10	11	11
Bahrain		6	6	6
Bangladesh	10	10	1	1
Belgium	14	14	7	7
Brunei Darussalam	14	14	10	10
Canada		7		7
China	0	0	1	1
Czech Republic	14	14	1	1
Denmark	14	14	7	7
Egypt			6	6
Finland		18		
France			11	11
Germany	14	14	7	7
Greece			11	11
Hong Kong	12	12	12	12
India	6	10	10	13
Indonesia	14	14		
Iraq	8	8	7	7
Israel			10	10
Italy	3	3		
Japan	14	26.5	14	14
Jordan			7	7
Korea, Republic of	14	14	7	7
Kyrgyz Republic	10	10		
Lebanon			10	10
Luxembourg	4	4		
Macao	12	12	19	19
Mexico	10	10	11	11
Myanmar	6	6	6	6
Netherlands	14	14	11	11
New Zealand	4	38		
Norway	14	14	7	7
Oman	6	6	6	6
Pakistan			8	8
Qatar			6	6
Russian Federation	10	10		
Serbia	0	0		
Singapore	14	14	10	10
Slovenia	4	4		
South Africa	4	4		
Spain	10	10	10	10
Sweden	14	14	7	7
Switzerland	10	10	10	10
Thailand	11	11	7	7
United Arab Emirates	10	10		
United Kingdom	14	14	14	14
United States	34	28	29	29
Grand Total	382	482.5	323	337

liberalizes its ASA with Australia and New Zealand, dominating the oceanic region with passenger traffic flow of maximum 2.5 million in comparison to Philippines' 500,000. (5) Philippines ASA with European nations remain the same at a total European ALI of 114. Despite having an ASA with France and Greece, unlike Malaysia, the latter nation still scored a total ALI of 171 in the European region. This was an increase over 2005 owing to a new relatively liberal ASA with Finland. (6) The Philippines remains uncontested in the middle eastern region with a total ALI score of 52. This reflects the importance of the region for oversees Filipino workers which grew from 1.3 million in 2005 to 2.2 million in 2011. (PSA, 2012) Interestingly, following the bailout of PAL in 1998, the airline was given exclusive right to fly OFWs home from other countries, which coincides with the liberal agreements with the middle east and denotes the interconnectedness of Philippines policy reforms and private corporations. Malaysia however signed a new bilateral agreement with UAE which has been ranked as one of the top 20 megahubs for international aviation by 2017. (OAG, 2017) (7) Both countries expand their North American market by signing ASAs with Canada. (8) The Philippines marginally liberalizes its ASA with India, but Malaysia still controls the regional ALI with 40 points in comparison to 22 points for the Philippines. In table 25 we reconfigured the data to show for ALI total

score per region. With the exception of the middle east and Africa, Malaysia has more liberal ASAs distributed worldwide.

Table 25: ALI Standard Scores with Partner Regions *(WTO, 2006) (WTO OMC, 2017)*

Partner (by Region)	Malaysia		Philippines	
	2005	2011	2005	2011
South and South East Asia	111	124	86	86
Central and South America	10	20	11	11
Oceania	10	59	6	10
Europe	153	171	114	114
Middle East	24	30	52	52
Africa	4	4	6	6
North America	34	35	29	36
Central Asia	36	40	19	22

The corresponding traffic range for each region has also been extracted from the QUASAR database to show how it fairs in comparison to the calculated regional ALI. Results are shown here in table 26.

Table 26: Traffic Min-Max with Partner Regions in 2011 *(WTO OMC, 2017)*

Partner (by Region)	Malaysia	Philippines
	Traffic	Traffic
South and South East Asia	15300000 - 22500000	6111000 - 11560000
Central and South America	2000 - 20000	1000 - 10000
Oceania	1100000 - 2500000	100000 - 500000
Europe	823000 - 2482000	421000 - 1660000
Middle East	201000 - 710000	230000 - 851000
Africa	50000 - 100000	10000 - 50000
North America	110000 - 550000	1100000 - 2500000
Central Asia	1110000 - 2551000	102000 - 520000

This section portrayed a very simplistic side-by-side comparative view of the Air Liberalization Index derived by QUASAR in the cases of Philippines and Malaysia with their partners. Such an approach is useful in showing that Malaysia has much more liberal skies than the Philippines. Furthermore, their particular strengths in both traffic volumes and ALI indexes shine within countries of closer proximity, namely South and South East Asia, and Oceania. In developing its air transportation industry, this study has expressed the need for the Philippines to emulate the approach taken by its neighbour Malaysia. Here we can intuitively deduct that in terms of Air Service Liberalization, the Philippines should focus more on liberalizing its bilateral agreements with close proximity nations such as Japan, Korea, Singapore, Indonesia, Australia, and New Zealand. In the next section, however, we will attempt to take an altered and more methodological approach to the Philippines ASA liberalization thought process.

5.4.5 Bilateral Agreement Liberalization Analysis

Previous literature using the ALI index have in almost all cases used it to determine passenger traffic.[57] The Centre for Asia Pacific Aviation (CAPA), with

[57] Refer to list of studies using QUASAR methodology provided by WTO Secretariat in the following link: https://www.wto.org/english/tratop_e/serv_e/transport_e/transport_air_e.htm

the APEX context, attempted to foster a connection between liberalisation policies and measures of economic performance. They accomplished this through employing a "progress coefficient" in the examination of air transport liberalisation extent within APEC members and measuring its relation to GDP and air traffic. The study concluded a correlation between GDP and liberalization levels in approximately 50% of the APEC economies, as indicated by the progress coefficient. These results demonstrate the relaxing of restrictions within this sector are normally spearheaded by more developed economies. (CAPA, 2007) Grosso (2008) then expanded on this study by attempting to strengthen the link progress in liberalization and enhanced passenger traffic. Using a standard gravity model, it has been estimated that there is a positive and statistically significant connection between liberalized bilateral air services and passenger traffic movement. The concluded results are conducive to a large range of specifications, whilst controlling for all variations of the ALI score and other fixed effects. In line with estimates, it was suggested that should APEC economies ease their air transportation restrictions, effectively doubling their ALI indexes with their bilateral air service partners, inter and intra-APEC, the increased traffic could amount to at least 5-7%. (GrossoMassimo, Liberalising Air Passenger Services in APEC, 2008)

5.4.5.1 Methodology

Here we will take a different approach specific to the case of Philippines while using a similar methodology as Grosso. We will attempt to determine the approach taken to air service agreement liberalization by the Philippines and Malaysia as functions of the approach taken by their bilateral air service agreement partners to the same.

In formulating QUASAR, it was found that each nation places a larger weight on one or more of the features comprising ALI, more than its other features. This was reflected in the altered ALI score to account for one of the following three situations:

- **5th + Air Liberalization Index weighing System**: In certain State, the 5th freedom could bare more importance than what is attributed in the points distribution in accordance to the standard weighting system. For instance, the geographical attributes of the States, could limit the point-to-point traffic volumes and possibilities. Or their, distance from densely populated urban regions could weaken their access to consumer demand generation necessary for maintaining regular services or utilizing large

size aircrafts. In such a scenario, States would find it imperative to secure fifth freedom rights for their carriers, which would enable combination of intermediate stops with final and distant destinations.

- **OWN+ Air Liberalization Index weighing System**: The ownership structure of a States airlines, such as a privatized flag carrier in the Philippines, could lead to a higher importance being levied on liberalization of withholding provisions. In a scenario where airlines under the ASA are jointly owned by a community of states, or by foreign owners, the contracting state would pursue more liberalized withholding/ownership provisions.

- **DES+ Air Liberalization Index weighing System**: Where a contracting state has multiple airlines operating, they are more likely to be interested in granting rights which would enable the designation of more than one airline in servicing the agreed upon routes.

A complete list of reconfigured ALI weighing system by 5^{th} +, OWN+, and DES+ as well as the recalculated ALI score for each country in our sample can be found

in Appendix D. To the point, each of these variations of the ALI score determine the importance of Freedoms of the air, Ownership, and Designation to the respective countries. We are concerned with how the Philippines (and Malaysia) approach the liberalization of their bilateral agreements while considering the partner's preference for each feature mentioned above. Our point of departure for this section is a traditional OLS model estimated in its linear form:

$$ALI_{xj} = \beta 0 + \beta 1\ GDP_{ij} + \beta 2\ Distance_{x} + \beta 3\ Population_{ij} + \beta 4\ BilateralASAs_{ij} + \beta 5\ ComLeg_{i} + \beta 6\ ComLang_{i} + \beta 7\ ALI_{fij} + \varepsilon_{ij}$$

x is the originating country, in this case Philippines or Malaysia; ***j*** is the year of study, in this case 2005 or 2011;***ALI*** is the standard ALI index provided by QUASAR and is used in the same method as Grosso (2008); ***i*** is the partner country in our sample of 53; Next we have common related independent variables used in gravity models including ***GDP*** denoting the partners GDP at time of study in billions ('000,000,000), ***Distance*** showing the flight distance mileage calculated between the capital cities of originating country and partner country in thousands ('000), ***Population*** measuring the partner country population at time of study in millions ('000,000), ***ComLang***, which is a dummy with a value of 1

where the originating and partner country have a common official or primary language and 0 otherwise, and ***ComLeg,*** which is a dummy with a value of 1 where originating and partner country have common legal origins or traditions. Due to the legal framework within which bilateral agreements fall within, we felt this to be a relative variable here; $\boldsymbol{ALI_f}$ is the adjusted ALI score, where $\boldsymbol{f}$ is 5^{th}+, OWN+, or DES+.

ALI indices have been sourced from WTO (2006) through the QUASAR analysis and the ASAP tool releases also by WTO (2011). GDP and Population measures were extracted from the World Bank Indicators database through the World Bank (2017). Distance was manually measured for each country using the flight distance mileage calculator tool on worldatlas (2017). ComLand and ComLeg were kindly provided to the author by the CEPII international research centre (2017). (WTO, 2006) (WTO OMC, 2017) (The World Bank, 2017) (worldatlas, 2017) (CEPII, 2015)

We refrain from referring to this model as purely a gravity model since the common indices such as distance, language, colonial history, borders, etc. showed little or no significance in our models. However, their respective

coefficients were of particular interest. Furthermore, Silva and Tenereyro (2006) suggest: “estimating the OLS model in its multiplicative form and propose the poisson pseudo maximum likelihood (PPML) estimation technique. This approach is useful as it provides an effective way to deal with zero values of the dependent variable and can generate more precise estimates in the presence of heteroskedasticity”. We have determined the results for both OLS and PPML techniques herein. The PPML results have not been included here, however, the results were for the most part identical to the traditional regression model used here.

5.4.5.2 Results

The results of the equation estimated using conventional OLS with robust standard errors are presented in tables 27 and 28. We have tabulated the results based on 2005 and 2011 recorded ASAs for Philippines and Malaysia for visual simplicity. All variables per corresponding year remain fixed with the exception of partner country ALI measure which is interchanged in each model. The parameters are linear and thus provide an estimate of the unit change in air liberalization index as a result of 1 unit change in the variable in question. The

model fits the data quite well, explaining more than half of the variation in some cases. Each of the variables used reveal the following:

- **GDP**: In 2005, the quality of liberalization level of both Malaysia and Philippines was dependent primarily on partners GDP, with a significance level of 99% in almost all cases - a higher partner country GDP would attract more ASAs, and more liberalized ASAs from the two nations. This was the most relevant variable noted for 2005. However, in 2011, both countries reliance of partner country GDP drops, with Philippines to a significance of 95%, and only 90% in Malaysia. The Philippines therefore considers partner country GDP more than Malaysia in creating and liberalizing bilateral ASAs. This finding aligns with all previous studies in this field. Grosso (2008), Piermartini (2008) and InterVISTAS (2015) have all found strong relationship between GDP and air service liberalization.

- **Population**: Both Countries show relative significance of partner country population in 2005 with a negative coefficient. The trend continues into 2011, but Malaysia dependence on this factor diminishes.

- **Distance**: Similar to any gravity model (or the like), this study had found a significance of distance in determining bilateral agreement liberalization. Very interestingly however, the Philippines and Malaysia diverge in 2011 where the former shows a positive coefficient and the latter a negative coefficient. This shows that the Philippines has more liberalized agreements with nations which are farther away. By contrast, Malaysia has stronger ASAs with close proximity nations, preferably within its region. This explains the higher total ALI score of Malaysia in South and South East Asia and Oceania.

- **Bilateral ASAs**: This result shows significance at the 95% level in both countries in 2005. Meaning preference was given for ASAs with countries that already had a bigger portfolio of ASAs. While this finding is intuitive, the dependence again in both countries falls by 2011.

- **Common Language**: this dummy variable shows very little relevance to our model. In 2011, however, it increases significance in the Philippines as can probably be better explained by the next variable below.

- **Common Legal Origins**: There has been substantial empirical data to show that legal protective rules on investors differ systematically based on legal origins and traditions. Common law countries (originating in English law) demonstrate higher protective measures over external investors. By contrast, Civil law countries (originating in Roman law) and particularly French civil law countries exhibit less protective measures. (La Porta & Shleifer, 2008) The Philippines while currently operating under a combination of common law, civil law, Islamic law, and indigenous law, has originated from a Spanish style civil law system. Based on La Porte and Shleifers argument, we can conclude that the Philippines has settled more liberal ASAs with originally civil law countries. Revisiting table 18, we can see that most of the nations with which Philippines has an ASA and Malaysia does not, have their origins in civil law. It is interesting to note that Malaysia, despite not showing a significance for this factor, is under the common law.

- **ALI**: Lastly, we will consider the crucial factor of ALI and its various weighted systems. In 2005, neither country showed any statistical significance of partner liberalization levels for any of the ALI variables.

However, by 2011, this variable becomes the single most important factor with a significance level at the 99% in most cases. Malaysia champions partner ALI (5+, OWN+, DES+) levels, and primarily pursues more liberal ASAs with countries which are likewise liberal with their bilateral agreements. While this relationship is intuitive, the difference in level of significance for the two originating countries is crucial. Malaysia has historically pursued a stronger hub-and-spoke connectivity mechanism, and seeks to strengthen its networking ability both internally, by expanding infrastructure, and externally by tapping into other powerful hub-and-spoke giants such as Singapore. (Malaysia MOT, 2015) More interesting for our research are the outcomes in the Philippines. From the three weighted scores, OWN+, showed the highest degree of impact and relevance with a 99% significance level. From these results, we can conclude that the Philippines seeks liberal air service agreements primarily with partners which are themselves open particularly in terms of ownership rights. This finding makes sense due to the role of LCC's in the Philippines. The Philippines has the largest infiltration of LCCs than any other Asian Country. (Pearson, 2015) Furthermore, PAL, the Philippines flag carrier is wholly privatized and owned by Lucio Tan. Therefore, choice of liberalized ASA with partner nations, is dependent on their willingness to admit privately owned airlines such as PAL to operate in their territories.

Table 27: Philippine ALI regression 2005 (Compiled by Author)

		Dependant Variables			
		PALIST5	**PALIST5**	**PALIST5**	**PALIST5**
Independent Variables	**PDISTS**	-0.383 *	-0.383 *	-0.387 *	-0.336 *
	p-value	(0.171)	(0.171)	(0.171)	(0.175)
	WGDPS5	0.000165 ***	0.000145 ***	0.000150 ***	0.000136 **
	p-value	(0.0000422)	(0.0000419)	(0.0000409)	(0.0000409)
	WPOPS5	-0.00585 *	-0.00575 *	-0.00599 *	-0.00503 *
	p-value	(0.00305)	(0.00302)	(0.00299)	(0.00306)
	WALIST5	0.0870			
	p-value	(0.192)			
	WBI5	0.0907 **	0.0912 **	0.0905 **	0.0898 **
	p-value	(0.0305)	(0.0305)	(0.0306)	(0.0302)
	PCOMLEG	3.577 *	3.555 *	3.597 *	3.338 *
	p-value	(1.460)	(1.454)	(1.459)	(1.455)
	PCOMLANG	1.926	1.876	1.978	1.541
	p-value	(1.663)	(1.653)	(1.649)	(1.663)
	WALI55		0.109		
	p-value		(0.182)		
	WALIO5			0.0614	
	p-value			(0.158)	
	WALID5				0.216
	p-value				(0.190)
	_cons	1.118	0.700	1.221	-0.198
	p-value	(2.707)	(2.862)	(2.750)	(2.664)
	N	53	53	53	53
	adj. R-sq	0.451	0.452	0.450	0.464

**Note: "Standard errors in parentheses", * p<0.05 ** p<0.01 *** p<0.001*

Legend:

_cons	Constant	**WALI55**	Partner Air Liberalization Index, 5_{th}+ 2005
PALIST5	Philippines Air Liberalization Index, Standard 2005	**WALIO5**	Partner Air Liberalization Index, OWN+ 2005
PCOMLANG	Philippines-Partner Common Official or Primary Language Dummy	**WALID5**	Partner Air Liberalization Index, DES+ 2005
PCOMLEG	Philippines-Partner Common Legal Origin Dummy	**WBI5**	Partern # of Bilateral Air Service Agreements 2005
PDISTS	Philippines-Partner Flight Distance ('000)	**WGDPS5**	Partner GDP ('0,000,000) in 2005
WALIST5	Partner Air Liberalization Index, Standard 2005	**WPOPS5**	Partner Population ('000,000) in 2005

Table 28: Philippine ALI regression 2011 (Compiled by Author)

		Dependant Variables			
		PALIST11	**PALIST11**	**PALIST11**	**PALIST11**
Independent Variables	**PDISTS**	0.137 *	0.162 *	0.0433 *	0.131 *
	p-value	(0.190)	(0.188)	(0.194)	(0.191)
	WGDPS11	0.0000856 **	0.00000876 **	0.0000807 **	0.0000868 **
	p-value	(0.0000310)	(0.0000304)	(0.0000293)	(0.0000308)
	WPOPS11	-0.00466 *	-0.00483 *	-0.00376 *	-0.00473 *
	p-value	(0.00267)	(0.00263)	(0.00265)	(0.00266)
	WALIST11	0.246			
	p-value	(0.170)			
	WBI11	0.0426	0.0425	0.0374	0.0415
	p-value	(0.0343)	(0.0343)	(0.0334)	(0.0344)
	PCOMLEG	4.514 **	4.535 **	4.251 **	4.424 **
	p-value	(1.473)	(1.475)	(1.428)	(1.473)
	PCOMLANG	4.243 *	4.434 *	3.644 *	4.263 *
	p-value	(1.695)	(1.646)	(1.687)	(1.698)
	WALI511		0.229 *		
	p-value		(0.160)		
	WALIO11			0.502 ***	
	p-value			(0.185)	
	WALID11				0.236 *
	p-value				(0.167)
	_cons	0.907 *	0.513 *	-0.0755 *	0.666 *
	p-value	(2.807)	(3.038)	(2.657)	(2.977)
	N	39	39	39	39
	adj. R-sq	0.531	0.530	0.559	0.530

**Note: "Standard errors in parentheses", * p<0.05 ** p<0.01 *** p<0.001*

Legend:

_cons	Constant	**WALI511**	Partner Air Liberalization Index, 5_{th}+ 2011
PALIST11	Philippines Air Liberalization Index, Standard 2011	**WALIO11**	Partner Air Liberalization Index, OWN+ 2011
PCOMLANG	Philippines-Partner Common Official or Primary Language Dummy	**WALID11**	Partner Air Liberalization Index, DES+ 2011
PCOMLEG	Philippines-Partner Common Legal Origin Dummy	**WBI11**	Partern # of Bilateral Air Service Agreements 2011
PDISTS	Philippines-Partner Flight Distance ('000)	**WGDPS11**	Partner GDP ('0,000,000) in 2011
WALIST11	Partner Air Liberalization Index, Standard 2011	**WPOPS11**	Partner Population ('000,000) in 2011

Table 29: Malaysia ALI regression 2005 (Compiled by Author)

		Dependant Variables			
		MALIST5	**MALIST5**	**MALIST5**	**MALIST5**
Independent Variables	**MDISTS**	-0.336 *	-0.330 *	-0.309 *	-0.331 *
	p-value	(0.234)	(0.235)	(0.232)	(0.229)
	WGDPS5	0.00018 **	0.000184 ***	0.000191 ***	0.000177 **
	p-value	(0.0000518)	(0.0000518)	(0.0000501)	(0.0000517)
	WPOPS5	-0.00898 *	-0.00917 *	-0.00957 *	-0.00856 *
	p-value	(0.00370)	(0.00368)	(0.00361)	(0.00379)
	WALIST5	0.147			
	p-value	(0.244)			
	WBI5	0.0958 **	0.0958 **	0.0941 **	0.0964 **
	p-value	(0.0366)	(0.0368)	(0.0367)	(0.0366)
	MCOMLEG	-1.303	-1.252	-1.140	-1.315
	p-value	(1.645)	(1.647)	(1.651)	(1.627)
	MCOMLANG	3.258	3.361	3.771	2.606
	p-value	(2.982)	(3.004)	(2.866)	(3.238)
	WALI55		0.112		
	p-value		(0.235)		
	WALIO5			0.0346	
	p-value			(0.194)	
	WALID5				0.196
	p-value				(0.254)
	_cons	2.677	2.809	3.555	2.342
	p-value	(3.154)	(3.361)	(3.245)	(3.131)
	N	53	53	53	53
	adj. R-sq	0.412	0.411	0.408	0.415

**Note: "Standard errors in parentheses", * p<0.05 ** p<0.01 *** p<0.001*

Legend:

_cons	Constant	**WALI55**	Partner Air Liberalization Index, 5_{th}+ 2005
MALIST5	Malaysia Air Liberalization Index, Standard 2005	**WALIO5**	Partner Air Liberalization Index, OWN+ 2005
MCOMLAN	Malaysia-Partner Common Official or Primary Language Dummy	**WALID5**	Partner Air Liberalization Index, DES+ 2005
MCOMLEG	Malaysia-Partner Common Legal Origin Dummy	**WBI5**	Partern # of Bilateral Air Service Agreements 2005
MDISTS	Malaysia-Partner Flight Distance ('000)	**WGDPS5**	Partner GDP ('0,000,000) in 2005
WALIST5	Partner Air Liberalization Index, Standard 2005	**WPOPS5**	Partner Population ('000,000) in 2005

Table 30: Malaysia ALI regression 2011 (Compiled by Author)

		Dependant Variables			
		MALIST11	**MALIST11**	**MALIST11**	**MALIST11**
Independent Variables	**MDISTS**	-0.459 **	-0.383 **	-0.403 **	-0.471 *
	p-value	(0.235)	(0.258)	(0.228)	(0.239)
	WGDPS11	0.0000551 *	0.0000659 *	0.0000641 *	0.0000569 *
	p-value	(0.0000387)	(0.0000426)	(0.0000374)	(0.0000392)
	WPOPS11	-0.00639	-0.00726	-0.00559	-0.00655
	p-value	(0.00338)	(0.00372)	(0.00332)	(0.00342)
	WALIST11	0.894 ***			
	p-value	(0.150)			
	WBI11	0.0519	0.0462	0.0497	0.0529
	p-value	(0.0356)	(0.0393)	(0.0347)	(0.0361)
	MCOMLEG	-2.005	-1.277	-1.787	-2.191
	p-value	(1.817)	(1.993)	(1.750)	(1.863)
	MCOMLANG	-3.402	-1.744	-5.382	-3.754
	p-value	(2.758)	(3.033)	(2.740)	(2.805)
	WALI511		0.752 ***		
	p-value		(0.158)		
	WALIO11			0.898 ***	
	p-value			(0.144)	
	WALID11				0.883 ***
	p-value				(0.153)
	_cons	1.213	-0.0447	1.806	0.0169
	p-value	(2.799)	(3.326)	(2.676)	(2.950)
	N	43	43	43	43
	adj. R-sq	0.560	0.462	0.582	0.547

**Note: "Standard errors in parentheses", * p<0.05 ** p<0.01 *** p<0.001*

Legend:

_cons Constant
MALIST11 Malaysia Air Liberalization Index, Standard 2011
MCOMLAN Malaysia-Partner Common Official or Primary Language Dummy
MCOMLEG Malaysia-Partner Common Legal Origin Dummy
MDISTS Malaysia-Partner Flight Distance ('000)
WALIST11 Partner Air Liberalization Index, Standard 2011
WALI511 Partner Air Liberalization Index, 5_{th}+ 2011
WALIO11 Partner Air Liberalization Index, OWN+ 2011
WALID11 Partner Air Liberalization Index, DES+ 2011
WBI11 Partern # of Bilateral Air Service Agreements 2011
WGDPS11 Partner GDP ('0,000,000) in 2011
WPOPS11 Partner Population ('000,000) in 2011

5.5 Summary of Findings on Air Service Liberalization

Just as a reminder, the primary objective of this research is to aid the Philippines in developing its Air transportation industry by looking at its regional partner, Malaysia, and emulating best practices. In terms of air liberalization practices Malaysia was recognized as a significant hub in South East Asia mostly due to the flourishing of its low-cost carrier market, in comparison to say Singapore which flourished due to regional relativity. (OAG, 2016) Alongside a vibrant LCC industry, we also saw market share growth rates of foreign owned airlines in KLIA from all over the world, but primarily from within Asia. Malaysia was seen to host 77 airlines over Philippines' 44, with passenger traffic rates of over 25%. We expected this to be a by-product of Malaysian participation in Air Service liberalization, and the results have confirmed this.

- In terms of Multi-lateral agreements, on the ratification of the ASEAN Open Skies agreement, Malaysia was among the first set of nations to ratify the documents following the official signing dates. Philippines through its protectionist measures was delayed by over six years in signing off on certain protocols, such as allowing the third, fourth, and fifth freedoms of the air to ASEAN members in terms of air services. They also did not ratify the

extension of the same rights to China by 2017, in comparison to Malaysia' 2011. For the same time frame, Malaysian inter-ASEAN traffic grew by 15% per annum. As different ASEAN nations are taking advantage of Malaysia open-skies, the Philippines owns only 4% of their total ASEAN flight share. Similarly, through the ASEA-China (AC-ATA) agreement, Malaysia increased Chinese traffic by over 20% on ratifying the relevant protocol. Philippines however, with their delayed ratification receives one of the lowest share of Chinese arrivals in its region, below Cambodia and Laos. The delayed ratification aligns closely with the study by Oum and Adler (2006) on the effects of state ownership and political bureaucracy on development factors. A further look into designation of airlines under ASEAN open skies instruments revealed that the Philippines, despite ratification, is still insulating its flag carrier Philippines Airlines from competition from foreign airlines such as Chines owned ones.

- By applying the QUASAR approach to the Philippines and Malaysia, we determined several important factors regarding the number and quality of the respective bilateral air service agreements with partner countries. Firstly, it was determined that in ASEAN, Philippines was the only nation whose Air Liberalization Index (ALI) dropped from 2005 to 2011. Considering that the

Philippines was in fact more liberalized than Malaysia in 2005, it was important to determine how the latter overtook the former. A quick overview of regional level ALI for both Malaysia and Philippines showed that Malaysia had much higher liberalization in South and South East Asia, Oceania, and Europe. The Philippines on the other hand focused on North America.

The results of our OLS model revealed an even more interesting aspect to air service liberalization in both countries. The partner countries level of Ownership rights, and Common Legal Origins were found to be much more significant for Philippines than Malaysia. That is to say, the DOTr and its subsidiary CAB, have historically pursued more liberal skies with countries which share similar (1) legal configurations, and (2) do not impose sovereign infringement constraints on an expanding Philippine aviation market – that is open to privatized airlines, and not limited to state owned carriers. We have seen the theme of ownership to consistently reappear in this study, particularly its inhibition on the development of air transportation industry in the Philippines. Lastly, proximity of legal origins was an interesting finding which merits further studies.

5.6 Political Economy of Air Service Liberalization

Thus far, we have noted a rather conservative approach to air service liberalization from Philippine authorities – both in the case of Multi-lateral as well as bi-lateral agreements. The Philippines was (1) the last ASEAN member to ratify the ASEAN Open-Skies agreement, and (2) the only ASEAN member to experience a reduction in average ASA liberalization with partner countries for the time-frame of 2005 to 2011. This study contends that a potential commonality in both events is a result of a distraught political economy environment.

5.6.1 History of the Civil Aeronautics Board of the Philippines

To this end, we will briefly review the key institution mandated by the government to oversee all instances of air service agreements and opening of the Philippines skies to international air traffic – the Civil Aeronautics Board of the Philippines (CAB). By virtue of Executive Order No. 94, the office of President Manuel Roxas created CAB in 1947 as a body regulating, promoting, and developing economic aspects of air transportation. With the secretary of commerce as its original chair, CAB has since been transferred to the Department of Transportation, with an intermittent move to the Department of Tourism for a

brief period in 1972. (CAB, 2017) By 1995, liberalization initiatives produced Executive Order 219 (1995) which as a side-effect would place the supervising and granting of air service agreements exclusively under the umbrella of CAB, subject to confirmation of the office of the President. CAB would retain this exclusive role for the period of this study, ending in 2011 with the provision of Executive Order 28 (2011). Thereafter, the newly created Philippines Air Negotiating Panel (PANP) would be responsible for the initial negotiations leading to conclusions of new ASAs. This Panel is comprised of Department of Trade and Industry (DTI), Department of Transportation and Communication (DOTC)[58], Department of Labour and Employment (DOLE), Department of Tourism (DOT), and of course CAB as the agency primarily tasked with the coordination and preparation of all negotiations. (CAB, 2011)

5.6.2 Cases: Civil Aeronautics Board vs. Liberalization

Contradictory to its role as a major proponent in overseeing and promoting liberalization of the skies in the Philippines, CAB has surprisingly been involved over and again in a struggle to abstain from openness. We will examine this

[58] Currently known as the DOTr

statement in two particular cases of (1) Executive Order (EO) 500-B and (2) ASEAN Open-Skies.

As part of a 10-point legacy agenda, former President Arroyo declared the development of the Clark- Subic corridor back in June of 2005. Shortly after, in January 2006, she issued EO 500 – a declaration to grant foreign air carriers unlimited air access to the Clarke International Airport, formerly known as the Diosdado Macapagal International Airport (DMIA), and the Subic Bay International Airport (SBIA). (Salazar-Rodolfo, 2011) Hailing from the Pampanga region where CIA is situated, there is no surprise in why the President would promulgate development in this region. In conjunction with the head of CIAC, Jose Luciano, also a resident of the Pampanga region, all efforts were made to develop the underutilized regional airports. Local carriers spearheaded by Philippines Airlines quickly rebuked this EO on the grounds of safety and security concerns and lobbied to limit the extension of rights be limited to Airlines from a member nation with which the Philippines already had concluded an active ASA with. In a relatively quick turnaround, EO 500-A was issued to address local carrier concerns by limiting extension of rights only to officially designated carriers through bilateral ASAs.

Proponents of EO 500 rebuked by addressing the president with their concerns and demanding EO 500-B to reinstate the provision of EO 500 which were restricted under EO 500-A. Herein a political drift ensued. On the one hand supporters of liberalized skies included local stakeholders [59] and national stakeholders[60]. Oppositions to EO 500-B were based on local airlines, such as Philippines Airlines, as well as CAB. (Salazar-Rodolfo, 2011) Following four years of clashes, EO 500-B was never passed, primarily due to the vital role of the CAB as key facilitator of air liberalization and their protectionist measures.

Unfortunately, this was not the only occasion where CAB, in coalition with local airline operators, opposed opening of the skies. The delayed ratification of the ASEAN open-skies agreement was also a result of heavy opposition of the same

[59] Rodolfo (2011): "Businessmen, specifically groups such as the Clark Investors and Locators Association, the Metro Angeles Chamber of Commerce and Industry, the Greater Clark Visitors Bureau, the Chamber of Real Estate and Builders Association-Angeles Chapter, the Pampanga Chamber of Commerce and Industry, the Subic Chamber of Commerce and Industry, the Five Chambers of Central Luzon (now known as the Association of Business Chambers of Central Luzon), the Filipino-Chinese group of Angeles, and associations of air services users such as the local political elite, composed of the offices of the mayors and congressman, the provincial and local councils of Pampanga, the Subic-Clark Alliance for Development Council (SCADC), the CDC, the Subic Bay Metropolitan Authority, and the CIAC"

[60] Rodolfo (2011): "National Competitiveness Council, the Joint Foreign Chambers of Commerce, the Philippine Chamber of Commerce and Industry, the Makati Business Club, the Association of Schools of Public Administration in the Philippines"

parties. With domestic economic affairs at the heart of CAB's interests, opposition to ASEAN open-skies, once again led by local airlines such as Philippines Airlines and Cebu Pacific, ratification of the agreement by the Philippines was delayed by over six years. CAB officials cited their reservation as being rooted in infrastructure deficiencies – particularly, the "aging and hopelessly congested NAIA terminals". (CAB, 2017)

A primary observation made on the above scenarios is the close positive correlation between policy concerns of major local airlines in the Philippines and the governing bodies ratifying air transportation liberalization. The alignment of aviation policy reforms and private sector proponents, particularly Lucio Tan of Philippines Airlines, has its original bearings in the Asian Financial Crisis in the late 1990s. On September 23rd, 1998, the only Philippines flag carrier at the time, PAL ceased operations as a result of mounting financial losses and failed agreements with thee labor union. President Estrada would personally broker a union-management deal on behalf of PAL and convinced Lucio Tan to invest in the airline in return for a 90% share, waived fees at NAIA terminal 2, and a requirement for Overseas Filipino Workers to use PAL for their flights home. (Michaels, 2001) Perhaps the higher ALI score of the Philippines with North America and the Middle East corresponds to the higher presence of OFWs in

these nations, by comparison to Malaysia. Following this event, Individual carriers participated in ASA negotiations and used many channels to influence the CAB, and even the President, to advance their interests. These channels included direct bilateral lobbying of the President and CAB officials, public affairs campaigns to influence the public, and legal challenges - such as PAL's lawsuit against a CAB officials supporting open skies with Singapore. It was a messy institutional design that led to messy results. (Michaels, 2001) A study conducted by the Amdiji Group (1997) noted the ineffectiveness of having the CAB and Presidents office directly in charge of ASAs and recommended a separation of responsibilities, however, this recommendation has not been implemented to date. Furthermore, according to Dejillas (1996), the inherent relationship between individual interests and policy reforms aligns with the Philippine constitutions recognition of interest groups, and the allocation of legislative seats for the same.

6 Conclusion and Recommendations

The International Air Transport Association forecasts worldwide air passenger demand to double in the next 20 years. In real terms, this is over 7.2 billion passengers in comparison to the 3.8 billion travelers recorded in 2016. Approximately 50% of this traffic is predicted to come from the Asia-Pacific region. With the exception of the U.S., the top 5 fastest growing markets in terms of additional passengers are in Asia, including China, India, Indonesia, and Vietnam – two of which are part of ASEAN. This dissertation research chose the Philippines as the focal point of analysis in developing its air transportation industry in meeting the demands of current and future air passenger traffics. With the air transportation industry providing for 3.2% of current Philippines GDP, it is vital that the industry remains competitive in the face of global aviation transformation. Especially since numerous studies have shown various setbacks from which the Philippines suffers in terms of air transportation. A severely congested major gateway, NAIA, and inability to physically expand the same, limited options for a new major international airport with the best option being Clark International Airport at 100 km away from metro manila, a lack of major inter-ASEAN air passenger traffic market share, and a somewhat closed air

liberalization policy, make up some of the problems identified as plaguing the Philippines air transportation industry development.

To determine areas of productivity we started by choosing Malaysia as a benchmark for comparison. The Philippines can benefit by learning from an industry leader within its region with similar economic and spatial characteristics. Based on various literature, we determined that the two most essential factors to be infrastructure (airport competitiveness) and marketization (air service liberalization). The comparison was constructed within a framework where it is emphasized that direct state involvement in air transport industry developments are generally accepted as inefficient. (Oum, Adler, & Yu, 2006)

In terms of infrastructure, we drew on Parks (2003) five core-factors on airport competitiveness to assess NAIA and CIA, against KLIA, with CHANGI introduced into the model as a control. The results showed that in comparison to KLIA, NAIA needed to: (1) improve air navigation facilities and devise talent retaining strategies to prevent air traffic controller brain drain, (2) shift towards a public-private partnership on the operations and management of its airports, (3) emphasize airport public/private managerial activities to focus on maximizing non-aeronautical revenues, and (4) consider spatial factors in exploring a

potential shift of traffic from NAIA to Clark International Airport. These findings are intrinsically recommendations on areas of improvement for the Philippines to explore in developing its air transport infrastructure. From a political standpoint, point (2) was found to be deterred repeatedly due to opposition from interest groups such as the board of airline representatives, labor union groups, and civil aviation bodies such as CAPA and IATA. All oppositions are unified in their concerns over the inefficiency of CAB in ensuring a privatized NAIA would operate fairly in light of competition. These concerns were founded based on a history of CAB being influenced by various private interest groups.

To determine the competitiveness of the air service liberalization in the Philippines we explored liberalization on two levels. First, we looked at multi-lateral agreements, which is the ASEAN open skies agreement, to provide various freedoms of the air to member ASEAN nations, as well as between ASEAN members and partners such as China. We determined that the Philippines was one of the last ASEAN members to ratify all of the protocols in the agreement. The traffic lost to Malaysia in inter-ASEAN market share as well as incoming Chinese traffic was found to be quite significant for the years between Malaysia ratifying the protocols, and the Philippines ratifying the same. Furthermore, a closer look at designated airlines under the Open Skies agreement

shows protectionist measures taken by the Philippines in insulating its flag carrier, while Malaysia has granted most airlines with equal access rights under the agreement. Lessons learnt here are rather self-explanatory. It is crucial for the Philippines to take on a more active role in future multi-lateral open sky agreements as well be more inclusive of operating airlines subject to ratified instruments. This study recognizes its limitations on analyzing the political ramifications of international aviation openness, and observes the possibility of an in-depth study on the relationship between state bodies, policies, and the air transportation industry.

Next, in terms of air service liberalization we looked at the bilateral air service agreements (ASA) between the Philippines, Malaysia, and their respective partners. To this purpose, we utilized the QUASAR tool, created by the WTO Secretariat (2005). By considering the independent Air Liberalization Index for each ASA signed by Philippines and Malaysia with their partners in 2005 and 2011, we determined the factors which are most crucial to each country when entering into a new bilateral agreement. Using a simple OLS model, we found that the Philippines enters into more liberalized bilateral agreements with Countries which are further (physical distance), share common legal origins, and allow for more liberalized airline ownership rights. These findings coincide

further with unfair industry practices favoring the flag carrier, PAL. A history of collusion with private interests makes CAB lose its credibility in pursuing liberalization, and reinforce our findings with notions of a corrupt political economy backdrop. By contrast, Malaysia placed a heavier weight on closer (physical distance) nations, and equal and extremely significant weights on partners' liberalization levels in terms of freedoms of the sky, ownership and designation. Once again, our recommendation is inherent in the findings. Malaysia has been able to capture a much larger portion of its regional total passenger traffic than the Philippines, a value which far outweighs the Philippines higher market share of North American and Middle Eastern markets. Here, emphasis is on shifting to regional markets.

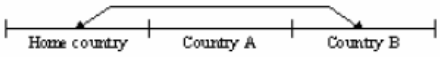
Further limitations of this study include a lack of coherent data availability. Various forms of data were kindly provided to the author by the Civil Aviation Authority of the Philippines, the CAPA Centre of Aviation, and the OAG Singapore office, based on the authors request. However, as previous literature has recognized, a lack of data in terms of aviation industry research has been a clear deterrent. Furthermore, the QUASAR tool developed by the WTO has not been updated since 2011. Should there be an update to the existing ALI index provided by the research, it is highly recommended that a similar research is

undertaken to study a more modern and relevant state of global bilateral air service agreements.

Finally, what does the future of air transportation hold for the Philippines? One of the most crucial steps forward in Philippines Aviation was the recent ratification of the ASEAN open skies instruments. The full effects of this multilateral agreement are yet to be realized, however, previous studies have unanimously shown benefits reaped by contracting states. Furthermore, we should also ask questions such as: What took the Philippines so long to ratify the ASEAN open skies instruments? Why are Philippines bilateral service agreements focused on geographically distant countries and biased on ownership rights? Why is the management of NAIA and most other national airports still under state control? The lack of liberalization found in the Philippines approach to air transportation development riddles findings from previous studies on benefits of liberalization. They also counter regional trends, such as this study found to be the case in Malaysia which has pioneered their industry competitiveness through liberal approaches to aviation. Based on the potential benefits which could be gained by the Philippines air transportation, we can only assume that inaction from the state could have alternative reasons beyond the scope of this study, such as restrictive policies, institutional corruption or

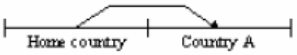
inefficiency, private sector interests, and other vested stakeholders. Countries differ both in the international and regional levels, and particular policy approaches could impact them differently. Prior to ratification of the ASEAN Open Skies, Forsyth, King, Rodolfo and Trace (2004) proposed a matrix to evaluate how policy options impact on objectives for various Countries. Therein, the independent variables included instruments such as fare liberalization, enhanced competition, liberalized ownership, cabotage rights, etc. and the dependent variables related to inbound and outbound tourism, passenger benefits, airport profits, foreign exchange, government revenue, etc. A further research into completing such a matrix for the Philippines could also provide additional insight as to why the Philippines has not yet adopted aviation approaches which could augment development in the industry, in terms of air service liberalization and airport management practices. We neither contend that a liberal approach is guaranteed to foster a best scenario outcome, nor do we assume that by following Malaysia's lead the Philippines will also become an industry leader in aviation. However, studies suggest that the benefits of these practices are very likely to outweigh the drawbacks to those whom this service is primarily meant for, the passengers.

7 APPENDIX A: Definitions of the Freedoms of the Air

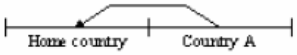


FIRST FREEDOM
To overfly one country en-route to another

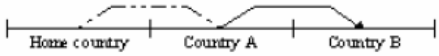
SECOND FREEDOM
To make a technical stop in another country



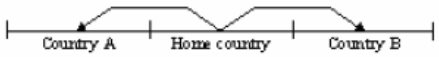
THIRD FREEDOM
To carry freight and passengers from the home country to another country



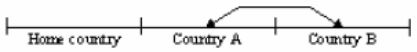
FOURTH FREEDOM
To carry freight and passengers to the home country from another country



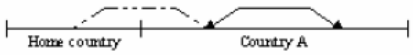
FIFTH FREEDOM
To carry freight and passengers between two countries by an airline of a third country on route with origin / destination in its home country



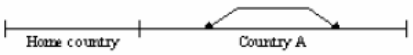
SIXTH FREEDOM
To carry freight and passengers between two countries by an airline of a third country on two routes connecting in its home country



SEVENTH FREEDOM
To carry freight and passengers between two countries by an airline of a third country on a route with no connection with its home country



EIGHTH FREEDOM OR CABOTAGE
To carry freight and passengers within a country by an airline of another country on a route with origin / destination in its home country



TRUE DOMESTIC
To carry freight and passengers within a foreign country with no connection with the home country

8 APPENDIX B: ASEAN Transport Instruments and Status of Ratification

ASEAN TRANSPORT INSTRUMENTS AND STATUS OF RATIFICATION

(As of September 2017)

INSTRUMENT	DATES OF SIGNING	DATES OF RATIFICATION BY MEMBER STATES										DATE OF ENTRY INTO FORCE
		BNR	CAM	INA	LAO	MAL	MYM	PHI	SIN	THA	VNM	
TRANSPORT FACILITATION												
ASEAN Framework Agreement on the Facilitation of Goods in Transit (AFAFGIT)	16/12/98	15/08/00	30/04/99	17/01/00	21/12/99	02/03/99	16/12/98	20/05/99	02/10/00	17/02/99	24/06/99	02/10/00
Protocol 1 Designation of Transit Transport Routes and Facilities	08/02/07	26/10/09	27/10/09	29/11/11	20/06/11		11/07/14	13/11/07		22/06/11	10/10/07	EIF among those countries who have ratified 21/08/11
Protocol 2 Designation of Frontier Posts												
Protocol 3 Types and Quantity of Road Vehicles	15/09/99	08/09/04	09/05/07	23/06/00	19/01/00	24/07/09	21/08/00	25/11/99	02/05/06	19/04/10	15/11/99	19/04/10
Protocol 4 Technical Requirements of Vehicles	15/09/99	08/09/04	09/05/07	23/06/00	19/01/00	24/07/09	21/08/00	26/11/99	04/05/06	19/04/10	15/11/99	19/04/10
Protocol 5 ASEAN Scheme of Compulsory Motor Vehicle Insurance	08/04/01	08/04/02	30/01/02	30/07/02	06/11/02	29/04/02	16/10/03	22/09/03	29/08/02	08/01/03	02/07/01	16/10/03
Protocol 6 Railways Border and Interchange Stations	16/12/11		17/10/13		25/01/17	22/08/17	25/2/14	28/02/17	19/02/16	3/9/12	12/12/12	
Protocol 7 Customs Transit System	24/2/15		13/01/17			15/09/17	20/09/16	13/01/16	03/04/17	31/03/17		

INSTRUMENT	DATES OF SIGNING	DATES OF RATIFICATION BY MEMBER STATES										DATE OF ENTRY INTO FORCE
		BNR	CAM	INA	LAO	MAL	MYM	PHI	SIN	THA	VNM	
Protocol 8 Sanitary and Phytosanitary Measures	27/10/00	07/08/10	23/05/03	31/12/02	09/05/01	13/01/11	25/09/02	29/01/10	30/03/06	23/8/03	29/3/01	13/01/11
Protocol 9 Dangerous Goods	20/09/02	16/04/04	14/06/07	29/08/03	19/05/03	13/09/17	25/04/03	10/06/03	13/09/07	22/01/16	15/11/02	13/09/17
ASEAN Framework on Multimodal Transport (AFAMT)	17/11/05		27/10/09	07/04/16	04/11/15		01/10/15	30/06/08		01/09/08	01/11/11	EIF among those ratified (30th day after deposit of IoR) 01/10/08
ASEAN Framework Agreement on the Facilitation of Inter-State Transport (AFAFIST)	10/12/09		22/11/13		27/09/11		27/01/17	17/12/12		30/11/11	25/04/12	EIF among those ratified (30th day after deposit of IoR) 30/12/11
Agreement on the Commercial Vehicle Inspection Certificates for Goods Vehicles and Public Service Vehicles Issued by ASEAN Member Countries	10/09/98	Ratified 25/1/2001	Ratified 30/4/99	Ratified 28/06/99	Ratified 27/11/06	Ratified 27/11/06	Ratified 21/09/99	Ratified 28/06/99	Ratified 18/03/2000	Ratified 05/02/04	Ratified 28/10/98	27 November 2006

LAND TRANSPORT												
Ministerial Understanding on the Development of the ASEAN Highway Network Project	15/09/99	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Upon signing
Agreement on the Recognition of Domestic Driving Licenses Issued by ASEAN Countries	09/07/85	05/11/86	30/04/99	20/11/86	16/10/97	24/02/86	16/10/97	02/06/86	10/09/86	07/12/87	22/01/97	07 January 1988 (for 6 AMS) 23 July 1997 (with accession of new AMS)

AIR TRANSPORT													
INSTRUMENT		**DATES OF SIGNING**	**DATES OF RATIFICATION BY MEMBER STATES**										**DATE OF ENTRY INTO FORCE**
			BNR	**CAM**	**INA**	**LAO**	**MAL**	**MYM**	**PHI**	**SIN**	**THA**	**VNM**	
Memorandum of Understanding (MOU) on Air Freight Services		19/0902	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	**Ratified**	This MOU shall cease to **have effect** upon the entry into force of the 2009 ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services
ASEAN Sectoral Integration Protocol for Air Travel		29/11/04	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	31/08/05
Protocol to Amend the ASEAN Memorandum of Understanding on Air Freight Services		08/02/07	01/12/08	19/06/08		27/07/09	12/03/10	12/01/09	12/03/10	22/10/07	08/02/10	10/10/07	This MOU shall cease to **have effect** upon the entry into force of the 2009 ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services
ASEAN Multilateral Agreement on the Full Liberalisation of Air Freight Services		20/05/09	30/03/10	05/05/11	31/08/15	17/03/11	15/12/09	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force 23/11/09
Protocol 1	Unlimited Third, Fourth and Fifth Freedom Traffic Rights among Designated Points in ASEAN	20/05/09	30/03/10	05/05/11	02/10/15	17/03/11	23/01/10	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force 23/11/09
Protocol 2	Unlimited Third, Fourth And Fifth Freedom Traffic Rights among All Points with International Airports in ASEAN	20/05/09	30/03/10	05/05/11	02/10/15	17/03/11	23/01/10	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force 23/11/09

INSTRUMENT	DATES OF SIGNING	DATES OF RATIFICATION BY MEMBER STATES										DATE OF ENTRY INTO FORCE
		BNR	CAM	INA	LAO	MAL	MYM	PHI	SIN	THA	VNM	
ASEAN Multilateral Agreement on Air Services	20/05/09	30/03/10	05/05/11	24/11/11	17/03/11	15/12/09	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force 23/11/09
Protocol 1 Unlimited Third and Fourth Freedom Traffic Rights within the ASEAN Sub-Region	20/05/09	30/03/10	05/05/11	24/11/11	17/03/11	23/01/10	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force 23/11/09
Protocol 2 Unlimited Fifth Freedom Traffic Rights within the ASEAN Sub-Region	20/05/09	30/03/10	05/05/11	24/11/11	17/03/11	23/01/10	07/08/09	19/04/10	03/07/09	13/10/09	22/12/09	In Force
Protocol 3 Unlimited Third and Fourth Freedom Traffic Rights between the ASEAN Sub-Regions	20/05/09	30/03/10	05/05/11	27/11/12	17/03/11	23/01/10	01/07/11	19/04/10	03/07/09	13/10/09	22/12/09	In Force 22/12/09
Protocol 4 Unlimited Fifth Freedom Traffic Rights between the ASEAN Sub-Regions	20/05/09	30/03/10	05/05/11	27/11/12	17/03/11	23/01/10	01/07/11	19/04/10	03/07/09	13/10/09	22/12/09	In Force 22/12/09
Protocol 5 Unlimited Third and Fourth Freedom Traffic Rights between ASEAN Capital Cities	20/05/09	30/03/10	05/05/11	30/5/14	17/03/11	23/01/10	01/07/11	11/3/16	03/07/09	13/10/09	22/12/09	In Force 22/12/09
Protocol 6 Unlimited Fifth Freedom Traffic Rights between ASEAN Capital Cities	20/05/09	30/03/10	05/05/11	30/05/14	17/03/11	23/01/10	01/07/11	11/3/16	03/07/09	13/10/09	22/12/09	In Force 22/12/09
ASEAN Multilateral Agreement on the Full Liberalisation of Passenger Air Services	12/11/10	20/02/13	30/07/13	07/04/16	07/04/16	24/05/11	01/07/11	28/03/12	14/03/11	02/09/11	30/09/11	In Force 30/6/11
Protocol 1 Unlimited third and fourth freedom traffic rights between any ASEAN cities	12/11/10	20/02/13	30/07/13	07/04/16	7/4/16	24/5/11	01/07/11	28/03/12	14/03/11	02/09/11	04/11/11	In Force 01/7/11
Protocol 2 Unlimited fifth freedom traffic rights Between any ASEAN cities	12/11/10	20/02/13	30/07/13	07/04/16	07/04/16	24/05/11	01/7/11	28/03/12	14/03/11	02/09/11	04/11/11	In Force 01/7/11

INSTRUMENT	DATES OF SIGNING	DATES OF RATIFICATION BY MEMBER STATES										DATE OF ENTRY INTO FORCE
		BNR	CAM	INA	LAO	MAL	MYM	PHI	SIN	THA	VNM	
MOU on the Association of Southeast Asian Nations' Air Services Engagement with Dialogue Partners	12/11/10	08/04/13	12/08/13	21/03/14	21/10/11	24/07/11	01/7/11	26/12/11	19/05/11	13/09/11	30/09/11	In Force 24/3/14
Protocol to Implement the Fourth Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	23/11/04	Ratified	Ratified	Ratified	Ratified	Ratified	Ratified	Ratified	Ratified	Ratified	Ratified	In Force 13/11/07
Protocol to Implement the Fifth Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	08/02/07	15/11/11	29/04/08	25/10/10	31/07/08	15/12/09	18/06/08	27/3/12	20/05/08	01/07/09	07/06/10	In Force 6/3/10
Protocol to Implement the Sixth Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	10/12/09	14/11/11	30/07/13	06/01/11	25/06/13	19/07/10	12/03/10	27/3/12	03/11/10	20/11/10	16/08/10	In Force 14/1/12
Protocol to Implement the Seventh Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	16/12/11	20/2/13	28/10/16	29/05/14	24/12/12	03/09/12	04/05/12	14/10/13	04/10/12	06/02/15	12/10/12	In Force 11/1/14
Protocol to Implement the Eighth Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	19/11/14		28/10/16		26/04/17	11/02/15	08/07/15	20/10/16	26/05/15	21/09/15	16/11/15	In Force 16/12/16
Protocol to Implement the Ninth Package of Commitments on Air Transport Services under the ASEAN Framework Agreement on Services	06/11/15				14/03/17	11/10/16		28/02/17	31/05/16	26/04/17	10/11/16	Not In Force
MOU on Cooperation Relating to Aircraft Incident and Accident Investigation	29/05/08	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	24/5/08
Air Transport Agreement between the Governments of the Member States of the Association of Southeast Asian Nations and the Government of the People's Republic of China	13/01/11	09/04/13	02/11/16	12/04/16	24/08/17	24/06/11	20/06/12	07/02/17	09/06/11	13/09/11	09/11/11	China: 09/08/11

INSTRUMENT	DATES OF SIGNING	DATES OF RATIFICATION BY MEMBER STATES										DATE OF ENTRY INTO FORCE	
		BNR	CAM	INA	LAO	MAL	MYM	PHI	SIN	THA	VNM		
Protocol 1 Unlimited Third and Fourth Freedom Traffic Rights Between Any Points in Contracting Parties	13/01/11	09/04/13	2/11/16	12/4/16	24/08/17	24/06/11	20/6/12	07/02/17	09/06/11	13/09/11	09/11/11	09/08/11 IF among those ratified	
Protocol 2 Unlimited Fifth Freedom Traffic Rights Between Contracting Parties	19/11/14		2/11/16		24/08/17	11/02/15	23/06/15	26/05/17	21/01/15	09/06/15	03/12/15	08/09/15 IF among those ratified	
MARITIME TRANSPORT													
MOU on Cooperation Relating to Marine Casualty and Marine Incident Safety Investigations	10/12/09	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Upon signing	
Agreement on Maritime Transport between ASEAN Member States and China	02/11/07	15/11/11	17/10/13	12/4/16	29/03/10	24/09/08	19/11/08	24/12/08	28/02/08	12/06/09	01/07/09	02/01/08	12/4/16

9 APPENDIX C: Air Liberalization Index on ASA with Partner Country

		2005		2011	
Country	**Code**	**Philippines**	**Malaysia**	**Philippines**	**Malaysia**
Argentina	ARG	0	0	0	10
Australia	AUS	6	6	10	21
Austria	AUT	11	10	11	10
Bahrain	BHR	6	0	6	6
Bangladesh	BGD	1	10	1	10
Belgium	BEL	7	14	7	14
Brunei Darussalam	BRN	10	14	10	14
Canada	CAN	0	0	7	7
China	CHN	1	0	1	0
Czech Republic	CZE	1	14	1	14
Denmark	DNK	7	14	7	14
Egypt, Arab Rep.	EGY	6	0	6	0
Fiji	FJI	0	0	0	0
Finland	FIN	0	0	0	18
France	FRA	11	0	11	0
Germany	DEU	7	14	7	14
Greece	GRC	11	0	11	0
Hong Kong SAR, China	HKG	12	12	12	12
India	IND	10	6	13	10
Indonesia	IDN	0	14	0	14
Iraq	IRQ	7	8	7	8
Israel	ISR	10	0	10	0
Italy	ITA	0	3	0	3
Japan	JPN	14	14	14	26.5
Jordan	JOR	7	0	7	0
Korea, Rep.	KOR	7	14	7	14
Kyrgyz Republic	KGZ	0	10	0	10
Lebanon	LBN	10	0	10	0
Luxembourg	LUX	0	4	0	4
Macao SAR, China	MAC	19	12	19	12
Malaysia	MYS	0	0	0	0
Mexico	MEX	11	10	11	10
Myanmar	MMR	6	6	6	6
Netherlands	NLD	11	14	11	14
New Zealand	NZL	0	4	0	38
Norway	NOR	7	14	7	14
Oman	OMN	6	6	6	6
Pakistan	PAK	8	0	8	0
Philippines	PHL	0	0	0	0
Qatar	QAT	6	0	6	0
Russian Federation	RUS	0	10	0	10
Serbia	SRB	0	0	0	0
Singapore	SGP	10	14	10	14
Slovenia	SVN	0	4	0	4
South Africa	ZAF	0	4	0	4
Spain	ESP	10	10	10	10
Sweden	SWE	7	14	7	14
Switzerland	CHE	10	10	10	10
Thailand	THA	7	11	7	11
United Arab Emirates	ARE	0	10	0	10
United Kingdom	GBR	14	14	14	14
United States	USA	29	34	29	28
Vietnam	VNM	0	0	0	0

10 APPENDIX D: Partner Country ALI Score Variations

		ALI Score Variations 2005				ALI Score Variations 2011			
Country	**Code**	Standard	5th +	Own +	DES+	Standard	5th +	Own +	DES+
Argentina	ARG	8.8	12.9	7.5	11.6	16.1	20.1	13.8	18.2
Australia	AUS	9	13.8	8	9.3	26.9	30.1	26.2	28.5
Austria	AUT	10.6	13.6	9.2	12.6	9.4	12.1	8.2	11.3
Bahrain	BHR	10.2	13.7	8.8	12.3	10.2	14.5	8.8	12.5
Bangladesh	BGD	5.8	8.5	5.5	6.4	6.2	9.5	5.5	6.6
Belgium	BEL	12.6	16.3	10.9	13.8	11.9	15.3	10	13.2
Brunei Darussalam	BRN	16.7	20.5	14.6	17.8	17.6	21.2	15.6	19.3
Canada	CAN	20.2	23.7	17.4	21.8	19.5	22.6	16.7	21.1
China	CHN	5.5	7.6	4.7	7.2	7.1	9.3	6.1	8.9
Czech Republic	CZE	12.8	14.9	11	14.5	12.2	14.4	10.6	13.9
Denmark	DNK	15.3	19.1	13.4	16.5	15.7	19.5	13.9	17
Egypt, Arab Rep.	EGY	9.5	12.7	8.1	12	7	8.8	5.9	9.6
Fiji	FJI	12.2	17.2	10.5	14.8	16	20.1	13.6	18
Finland	FIN	12.4	15.7	10.8	13.8	11.4	15	10.2	12.8
France	FRA	9.4	14.4	8.1	11.3	13.6	18	11.7	15.4
Germany	DEU	16.4	19.1	15.9	17.7	13.9	17.2	13.2	15.5
Greece	GRC	10.8	15.7	9.2	12.3	11.2	16.3	9.7	12.7
Hong Kong SAR, China	HKG	13.5	12.8	18.7	16.3	14.8	14.2	18.9	17.4
India	IND	7.9	12.4	6.9	9.6	14.6	18.6	12.8	16.7
Indonesia	IDN	12.9	17.1	11.4	14.6	14.3	18.3	12.8	16.6
Iraq	IRQ	2.2	1.8	1.7	1.8	8.2	12.7	6.9	9.1
Israel	ISR	11.9	16.3	10.3	12.5	9.9	13.6	8.6	10.4
Italy	ITA	13	16.3	11.3	14.1	11.6	15	10.1	12.7
Japan	JPN	14.8	19.7	13.2	16.8	23.6	27.3	20.4	25.2
Jordan	JOR	12.1	15.5	10.3	14.3	11.4	14.4	9.8	13.6
Korea, Rep.	KOR	11.7	14.7	10.4	14	14.5	16.8	12.9	16.4
Kyrgyz Republic	KGZ	4.5	4.4	4.7	5.7	2.6	2.4	2.7	3.4
Lebanon	LBN	9.7	13.6	8.3	12.7	9.8	13.8	8.4	12.8
Luxembourg	LUX	16.5	21	14.2	17.4	14.1	18.6	12.2	15.2
Macao SAR, China	MAC	14.5	14.9	19.5	15.7	15.1	15.4	19.8	16.9
Malaysia	MYS	10.7	14.6	9.8	12.6	12.2	16	11.1	14.3
Mexico	MEX	14.6	18.5	12.4	16.3	14	17.6	11.9	15.5
Myanmar	MMR	7.1	12.8	6.1	7.4	7.5	12.9	6.5	8.4
Netherlands	NLD	14.8	18.9	12.8	16.7	14.1	18	12.2	15.8
New Zealand	NZL	13.4	17.6	12	13.8	35.6	37.4	35.9	36.6
Norway	NOR	9.4	12.7	8.2	11.5	10.1	12.9	9.1	12.4
Oman	OMN	7.3	11.2	6.2	8.9	7.8	12.2	6.6	9.8
Pakistan	PAK	9.6	11.2	8.3	10.7	11	12.9	9.4	12.3
Philippines	PHL	13.1	16.5	12.4	14.5	11.2	14.6	10.7	12.7
Qatar	QAT	10.7	12.1	9.1	12	10.2	13.9	9.1	12.7
Russian Federation	RUS	4.2	6.1	3.7	4.9	5.7	8.1	4.9	6.2
Serbia	SRB	8.2	13.4	7	9.8	8.7	14	7.4	10.4
Singapore	SGP	13	17.3	11.8	15.3	16.1	19.9	15	18.4
Slovenia	SVN	3.9	4.4	3.3	6.4	4.2	5	3.6	6.8
South Africa	ZAF	9.9	10.9	8.8	11.7	11.6	13.3	10.1	13.4
Spain	ESP	8.3	11.2	7.2	10.1	8.3	10.5	7.2	10.2
Sweden	SWE	9	12.1	8.1	10.4	10.9	13.8	10	12.4
Switzerland	CHE	9.8	13.3	8.4	11.1	11.6	15.7	10.6	12.9
Thailand	THA	9.9	13.9	9.4	11.8	9.8	13.8	9.1	11.7
United Arab Emirates	ARE	11.3	14.2	9.8	14.1	11.3	14.3	10	14.1
United Kingdom	GBR	12	15.7	10.4	14.5	14.3	17.7	12.9	16.6
United States	USA	22.6	26	19.8	24.3	24.2	27.6	21.3	25.9
Vietnam	VNM	8	8.9	7.7	10.6	13.1	13.8	12	15.1

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이 논문의 목적은 필리핀과 말레이시아의 항공산업의 비교분석이다. 비교 결과 필리핀의 개발 전략에 대한 몇가지 정책 권장사항이 도출되었다. 이 연구는 항공산업의 두가지 측면을 염두에 두고 진행되었다. 첫번째로는 공항의 경쟁력을 중점으로 한 인프라스트럭쳐의 구성과 두번째로는 WTO가 디자인한 양적 항공서비스 약정을 적용한 항공 서비스 자유화이다. 연구결과 공항 경영의 민영화를 실시한 말레이시아의 항공산업은 덜 관료적인 산업의 형태를 띠게 되었으며 국영 산업인 필리핀의 공항들보다 공항의 효율성과 경쟁력을 높인 것으로 나타났다. 또한 필리핀의 양자 항공 서비스 협약과 협정이 맺어진 국가들의 해외투자에 대해 열려있는 정도와 법 체계 사이에 의미있는 연관성을 도출하였다. 한편 말레이시아의 경우 지리적으로 가깝고 자유화 된 영공을 가지고 있는 국가들과 파트너쉽을 가지는 경향이 있는 것으로 나타났다.

연관 검색어: 공항 경쟁력; 항공 서비스 자유화; 항공 산업; QUASAR; 필리핀; 말레이시아

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